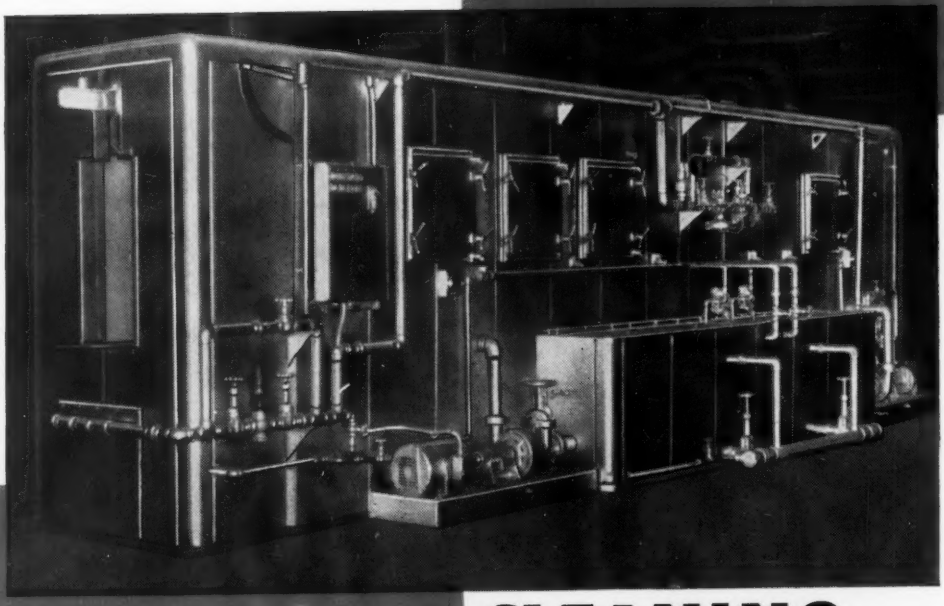
products finishing

JUNE
1959

Thick Vacuum Metallized Coatings . . . . . Page 162

Guide Lamp's Improved Plated Die Castings	Page 138
What Silicone Paints Can Do	Page 146
Free Booklets	Page 184
Table of Contents	Page 5

finishes on metal products



shining example of CLEANING EFFICIENCY

Cincinnati monorail wash, rinse & blow-off machine

for automotive parts

featuring . . .

- Completely Piped . . . ready for installation
- Insulated . . . for air-conditioned building
- Removable Steam Coils . . . easy maintenance
- Special Access Doors . . . water-tight

Installed in a big, new midwestern automatic transmission plant, this Cincinnati machine cleans an impressive variety and quantity of impeller covers and turbine assemblies.

In addition to a long list of the standard Cincinnati Cleaning features, it is equipped to provide extra savings . . . in installation, production and maintenance.

Cincinnati Cleaning & Finishing Machinery is designed specifically for your production problems, giving substantial savings over the life of the machine. Request a no-cost, no-obligation survey of your cleaning requirements . . . present or future. Write: Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

For more data circle 301 on Postpaid Card

For top efficiency in tank cleaning

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS

First choice in heavy-duty tank cleaning —hard-working Oakite "24"

Users everywhere agree that their best way to clean iron and steel parts is to tank-soak them in a hot solution of heavy-duty Oakite 24. This hard-working alkaline cleaner gets under the dirt layers and literally tears the soil from the surface. Despite excessive soil contamination of solution Oakite 24 maintains proper pH level and provides long, effective cleaning action.

Oakite 24 is but one of a wide range of alkaline tank-cleaning compounds. Others include medium and light duty oil and grease removers; self-emulsifying solvent cleaners specially designed for removing buffing compound residues, pigmented drawing compounds and other tenacious burned-on solid-particle dirts and smuts. Also available is a useful selection of materials for cleaning brass, copper, aluminum, magnesium, lead, tin and zinc.

Which is best for you? Only you and the Oakite man together can decide. It depends on your equipment, the parts you process, the next production step. Ask the Oakite man. From over 30 materials, you're *sure* to get the one cleaner that works most efficiently for you. Write for Bulletins. Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

it PAYS to ask Oakite

OAKITE

50 1909-1959 SCIENCE

years' leadership in industrial cleaning

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Service

Technical service with a capital S

. . . yours when you specify and use

Diamond Chromic Acid

You get the latest facts on all phases of chromic acid application, research and testing. Facts that can help you lick a production problem, quality problem, or research problem.

One such fact—DIAMOND CPA 1800 is *the additive* for chrome plating which increases plating speed, expands tank capacity, improves throwing power and the metallurgical character of chromium plate.

For top-quality plating get DIAMOND CHROMIC ACID and DIAMOND CPA 1800 *plus* all the facts from your Diamond Representative or your nearby Diamond Distributor. They can supply DIAMOND CHROMIC ACID where and when you need it. Diamond Alkali Company, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

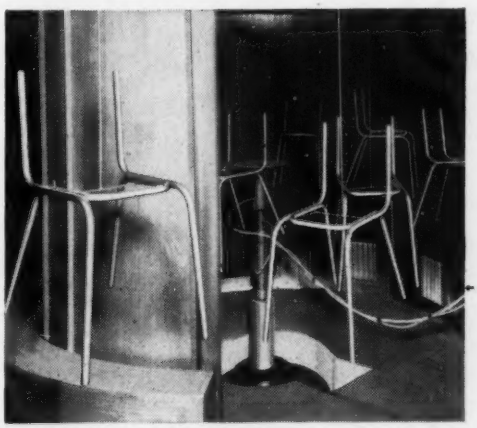
For more data circle 305 on Postpaid Card

RANSBURG *Electro-Spray...*

PROVIDES 50% PAINT SAVING

(over the former dip method) in the finishing of

KAY-MAR DINETTE FURNITURE



◀ A high quality, long-lasting finish is applied to tubular chair frames as they make a loop around the Ransburg No. 2 Process reciprocating disk in the finishing department at Kay-Mar Industries.

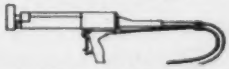
● Kay-Mar Industries, Cassopolis, Michigan, switched from the dip method to Ransburg Electrostatic Spray Painting because they wanted to improve the quality of the finish on their metal furniture line.

Now, with electrostatic spray painting, they get a heavier, more uniform application, which was not possible with former dip. With electrostatic, they are able to use metallic coatings with higher metal content. In their magazine advertising to the mobile home industry, they proudly say: "Finest finish in the industry at no additional cost to you!"

Electrostatic provides other advantages at Kay-Mar. They picked up some additional—and much needed—floor space when dip tanks were removed. Their insurance rates were reduced because of improved "housekeeping" conditions. Frequent color changes are made quickly and simply, and rejects—which used to run 1½%—are reduced to less than a quarter of one per cent.

No reason why you can't do it, too!

Let us test prove the advantages of automatic electrostatic spray painting on your products in our complete laboratories. No obligation. Call or write for our No. 2 Process brochure, which shows a variety of automatic painting installations on a wide variety of products. Or, if your production doesn't justify automatic painting, let us tell you about the new Ransburg No. 2 Process electrostatic hand gun, now widely used by both large and small manufacturers.



Call or write **RANSBURG Electro-Coating Corp.**

Box-23122, Indianapolis 23, Indiana

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"Enthol 230 solution completely removed buffing compound in 5 minutes!"

At Regal Plating Company, Providence, R. I., these brass keys have just been soaked for 5 minutes in a 3.5% by volume solution of Enthol 230 at 180° F. Buffing compound packed in design work and crevices has been effectively dissolved away.

Regal joins a growing list of platers who have discovered the efficiency of new Enthol 230 in cleaning out the deep crevices, engravings, and filigree work in ornate costume jewelry. As for economy, Regal reports that an 85-gallon tank of cleaning solution required only 3 gallons of Enthol 230 for make-up and 1 gallon for replenishment over a 6 week period! The "ammonia wash" used previously, could not compete with this low operating cost.

Whatever your buffing compound removal problem, this new, mildly alkaline, liquid detergent should solve it. Enthol 230 solutions penetrate and dissolve even hardened buffing compounds, and, in many instances, have eliminated hand brushing of parts. The solutions have extremely long life and high tolerance to contamination by dissolved soils. Enthol 230 solutions can clean steel, zinc die castings, aluminum, copper, brass, white metal, lead, nickel plate, gold, and silver. They are excellent for use in ultrasonic cleaning. Write today for complete information, to Enthone, Inc., 442 Elm Street, New Haven, Conn.

ASARCO

ANOTHER PRODUCT OF Enthonics RESEARCH

ENTHONE

A Subsidiary of American Smelting and Refining Company

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products finishing

Vol. 23 No. 9 June, 1959

FEATURES IN THIS ISSUE:

35 WELCOME TO A. E. S. GOLDEN JUBILEE CELEBRATION IN DETROIT • *By Wright W. Wilson*
36 PROGRAM FOR A. E. S. GOLDEN JUBILEE CONVENTION
36 —CONVENTION TIMETABLE, REGISTRATION INFORMATION
40 —EDUCATIONAL PROGRAM
60 —METAL FINISHING SUPPLIERS' ASSOCIATION PROGRAM
62 NATIONAL ASSOCIATION OF METAL FINISHERS' PROGRAM
69 FIFTH INDUSTRIAL FINISHING EXPOSITION
69 —THE FINISHING INDUSTRY'S EXPOSITION • *By Howard J. McAleer*
70 —EXPOSITION FLOOR PLAN
72 —FINISHING SHOW EXHIBITORS, PERSONNEL, PRODUCTS
110 —PHOTO PREVIEW OF THE FINISHING EXPOSITION
130 FINISHING PROCEDURES AT GUIDE LAMP • *By Gerard H. Poll, Jr.*
138 GUIDE LAMP'S NEW APPROACH TO PLATING AUTOMOTIVE DIE CASTINGS • *By Gerard H. Poll, Jr., Associate Editor*
146 SILICONES IN INDUSTRIAL FINISHES • *By Robert C. Hedlund*
162 A VACUUM-DEPOSITED COATING THAT WITHSTANDS EXTERIOR EXPOSURE

6 ADVERTISING REPRESENTATIVES

DEPARTMENTS:

64 NEW BOOKS
123 FINISHING CLINIC
166 SPOTLIGHTING FINISHING PROGRESS • *By Dr. Nelson F. Murphy*
166 —DEVELOPMENTS IN FINISHING ZIRCONIUM
174 NEW EQUIPMENT, MATERIALS, PROCESSES
184 PRODUCT LITERATURE
201 CLASSIFIED ADVERTISING
202 NEWS OF THE FINISHING INDUSTRY
206 THE FINISHING TOUCH
208 JUNE ADVERTISERS' INDEX

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For more data on advertisement on opposite page, circle 307 on Postpaid Card

with the PARAMOUNT
Finishing Touch

"It goes without saying that quality finishes are essential in our business," says Leavens Manufacturing Co., Attleboro, Mass., makers of fine jewelry, emblems and premiums. "We get best results in enamel polishing by using a Paramount soft wheel with grade F pumice. Paramount Felt Wheels cut faster, last longer and give us better quality than any other type we have used."

How about the finish on *your* products — does it meet the standards you and your customers have a right to expect? If not —

call your
Paramount Jobber today!

Paramount

Felt Wheels
Bobs, Sheet Felt

Bacon Felt Co.
447 West Water St., Taunton, Mass.

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products finishing

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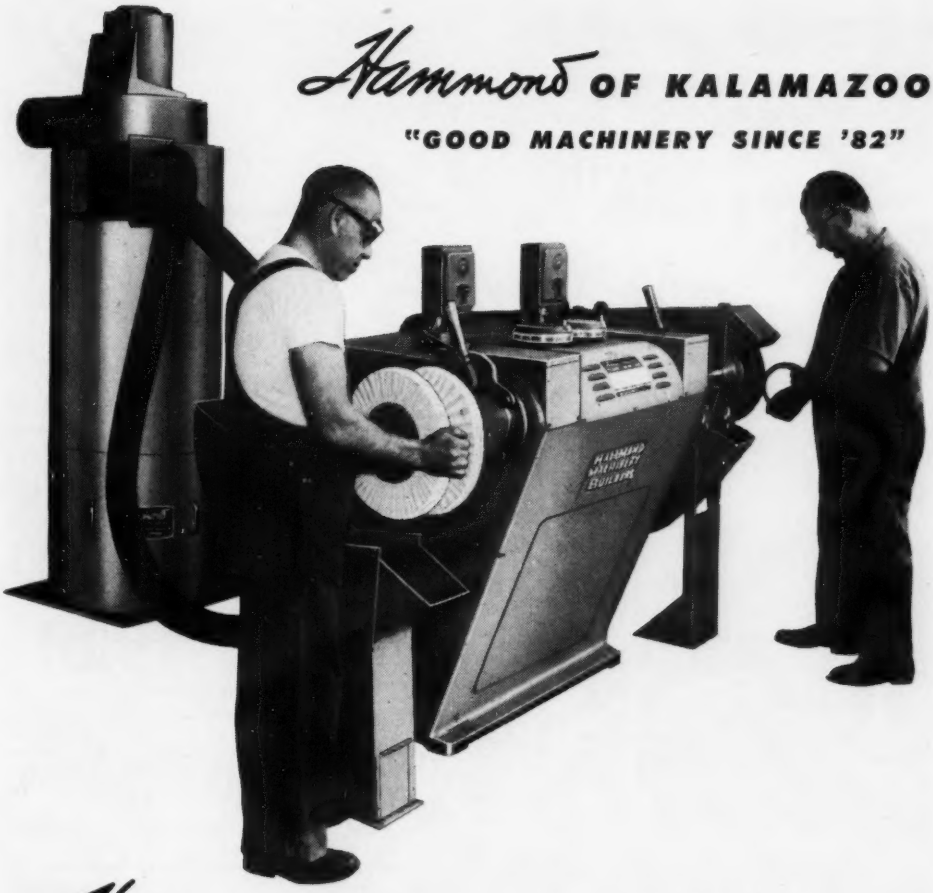
★ ★ ★

Circulation over 21,500— largest in the finishing field

Hammond OF KALAMAZOO

"GOOD MACHINERY SINCE '82"



Hammond MODERN SELF-CONTAINED TWO SPINDLE GRINDER-POLISHER

Reduce finishing costs — step up production with this modern, self-contained variable speed Grinder-Polisher.

Lathe has individual, variable speed dial control for each spindle. No "down time" for one operator when the other must increase speed or change wheel. Cyclone DusKolector requires little floor space. Backstand is one of 10 Air and Spring Tension Models to choose from.

Cost reduction through increased efficiency is the need of the day. Write for catalog showing America's most complete line of polishing and buffing machinery.

Hammond Machinery Builders INC.

1622 DOUGLAS AVE. • KALAMAZOO, MICHIGAN

SEE US AT THE INDUSTRIAL FINISHING EXPOSITION—JUNE 15-19—DETROIT—BOOTHS 261-266.

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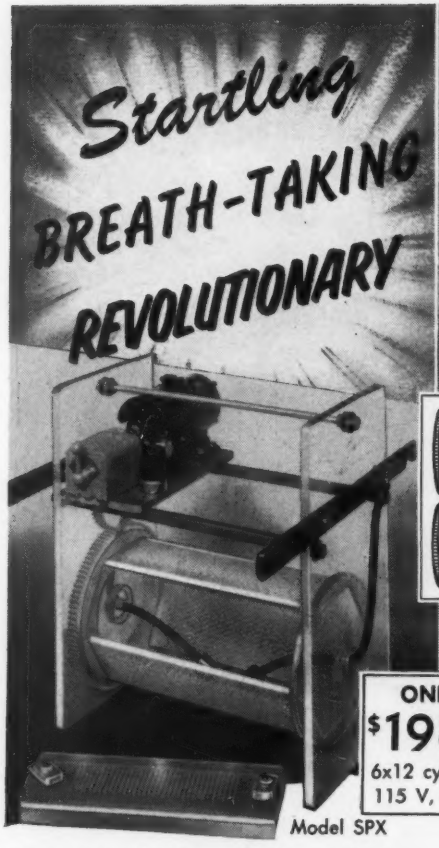
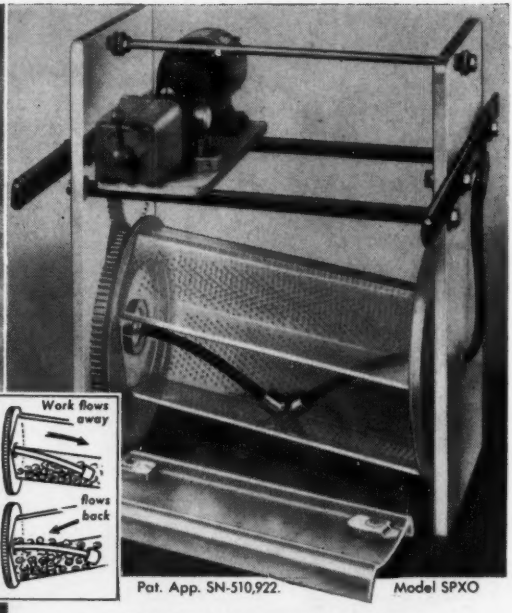
Startling BREATH-TAKING REVOLUTIONARY



ONLY $198.00
6x12 cylinder
115 V, 60 C

Model SPX



Pat. App. SN-510,922. Model SPXO

BELKE Double Oscillating Cylinder

Affords uniformity of deposit never before obtainable in barrel plating.

Eccentrically mounted cylinder oscillates as it rotates. Moves the work back and forth *across* the cylinder. No parts remain shielded by cylinder ends. All parts exposed for plating so uniform you can deposit specified thickness in a fraction of the time formerly required.
An absolute must for washers and flat pieces that tend to stick together.

All sizes from 14 x 30 regulars to 6 x 12 portables.

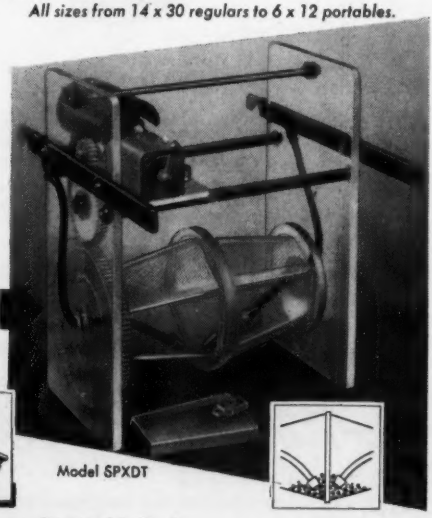
Conventional Non-oscillating Cylinder

Features of all three Porto-Platers shown

- "V" notch contact; fits any place on cathode rod.
- Self-contained motor drive with reversing switch.
- Obstruction free cylinder.
- Attached Plexiglas cover locks—never misplaced.
- One-piece dangler cable with ball contact.
- High temperature Plexiglas cylinder, cover, hangers, gears and bushings.
- Geared head motor, 1/50 HP. 115 V. 60 C, 1 Ph.

BELKE Double Tapered Odd-Lot Plater

Two *tapered* compartments. The taper piles the work around the ball contact in each compartment. Assures uniform plating in each compartment of any quantity from a few pieces to a full load. Avoids costly hand wiring otherwise necessary in plating small quantities.



Model SPXDT

BELKE MANUFACTURING COMPANY
947 Cicero Ave., Chicago 51, Ill.
EVERYTHING FOR PLATING PLANTS

For more data circle 310 on Postpaid Card

IF YOU CLEAN, PLATE OR PROCESS METAL

IF YOU PAINT OR STRIP PAINT

if you clean anything . . .

YOU CAN DEPEND ON THE

BEST PRODUCTS AND THE BEST TECHNICAL SERVICE

from

LEADERS IN SPECIALIZED PROCESSING AND MAINTENANCE CLEANING COMPOUNDS FOR THE FINISHING FIELD

THE DuBOIS CO., INC., CINCINNATI 3, OHIO

PLANTS AT: CINCINNATI • LOS ANGELES • DALLAS • E. RUTHERFORD, N. J.

CALL THE DuBOIS MAN NEAR YOU LISTED IN THE YELLOW PAGES UNDER "CLEANING COMPOUNDS"

For more data circle 311 on Postpaid Card

"We took the guesswork out

Chief Engineer Venner shown with modern, well-lighted DeVilbiss water-wash Spray Booth in background. Note paint heater affixed to top of booth.

# of quality control—thanks to DeVilbiss Paint Heaters"

"The function of paint heaters is critical in our operation," states Allen Venner, Chief Engineer, Southwest Manufacturing Co., Little Rock, Ark., makers of the famed Arkansas Traveler aluminum pleasure boats.

"Most of our craft are produced during the cool, rainy winter months. Indoor temperature and humidity are so variable that continually adjusting pressures and paint viscosity was a time-consuming 'guessing' game.

"Now, with DeVilbiss Paint Heaters, we have complete control over the quality of our boat finishes. Paint leaves the gun at approximately 140° F., regardless of room temperatures; the finish lays on evenly with a fine film build and superior gloss.

Painting costs reduced 30%

"This complete DeVilbiss installation brought us substantial cost reductions: By spraying at lower pressures, air compressor power costs went down 20%. We cut thinner and paint consumption 20%. There was a 50% reduction in booth maintenance. Overall savings amounted to 30%."

Call your DeVilbiss representative today and get the facts, first-hand, on the industry's most complete and up-to-date line of spray painting equipment.

THE DE VILBISS COMPANY
TOLEDO 1, OHIO
Barrie, Ontario • London, England
São Paulo, Brazil
Branch Offices in Principal Cities

FOR BETTER SERVICE, BUY
DE VILBISS

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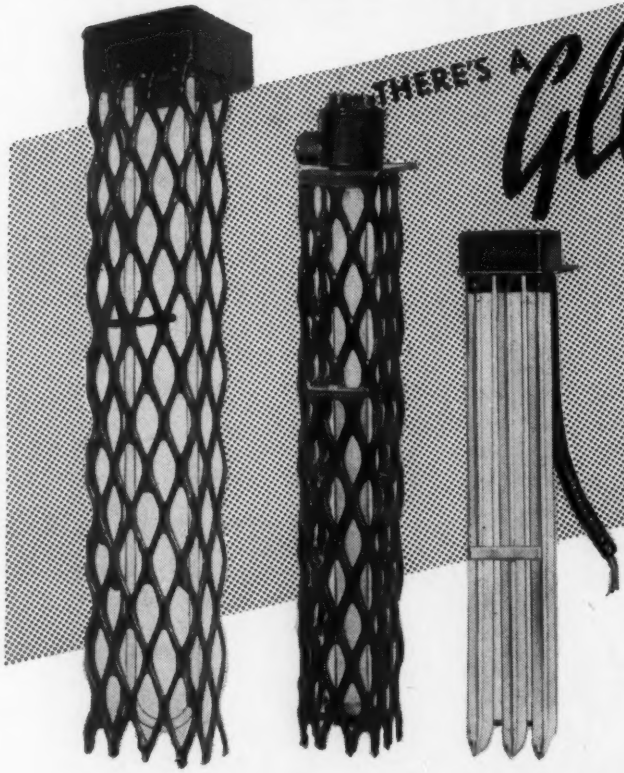
The Leading Name in Immersion Heating



THERE'S A **Glo-QUARTZ*** **IMMERSION HEATER** for YOUR EVERY **HEATING REQUIREMENT**

All 3 Types

- INSTANT HEATING
- SHORT-PROOF
- AVAILABLE IN ALL VOLTAGES—WATTAGES, one and three phase
- STOCKED FOR IMMEDIATE SHIPMENT

TYPE "U"
PATENT PENDING
World's first successful U-tube **ACID** Heater—Guaranteed to outperform and outlast all other quartz heaters.

TYPE "GN"
Pat. No. 2,740,881
Standard straight tube Quartz **ACID** Heater—Vapor-proof junction box; replaceable heating element.

TYPE "MB"
"Multi-Blade", Metal-sheathed **ALKALI** Heater—Portable, burn-out proof, easy mounting, long life.

WRITE FOR BULLETIN

If you're looking for
ACCURACY—EFFICIENCY—LONG LIFE—and ECONOMY
...you'll get it with Glo-QUARTZ!
Available from your Electroplating Distributor!

Glo-QUARTZ ELECTRIC HEATER CO., INC.
*Trademark Reg. U.S. Pat. Off. WILLOUGHBY, OHIO Phone: Willoughby 2-5521

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everything it touches turns to

GOLD

Old King Midas would have flipped his crown to see how ready-mixed gold transforms ordinary surfaces into golden richness. SEA-LAC ready-mixed gold comes in all shades of bronze powder — already mixed in the vehicle. Spray or dip; can be baked or air-dried. For use on aluminum, steel or zinc castings, polystyrene, acrylic and other plastics. Good package stability. In clear too — if you wish to do your own mixing. Available in smooth finish or one-coat hammer effect.

SEA-LAC

READY MIXED GOLD

DURALAC CHEMICAL CORPORATION, 84 LISTER AVENUE, NEWARK, N. J.

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COPPER SULFATE
NICKEL SULFATE

FROM

PHELPS DODGE

give you standard purity, uniformity, solubility... **plus:**

YOU ARE DEALING WITH A NAME YOU KNOW

Phelps Dodge, with over 60 years experience in supplying the plating field, is a dependable source of supply.

YOUR ORDERS ARE PACKED TO SUIT INVENTORYING DEMANDS

...shipped to you in 100-lb. sacks, and fibreboard drums, **the way it is easiest for you to handle.**

PHELPS DODGE IS ALSO A PRODUCER OF SELENIUM AND TELLURIUM

THERE'S NEVER A WAIT FOR SHIPMENT

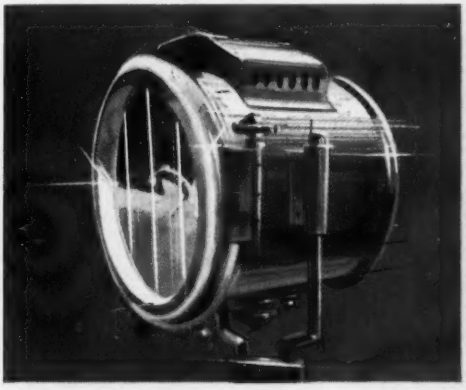
Orders are filled promptly from ready-to-ship stocks.

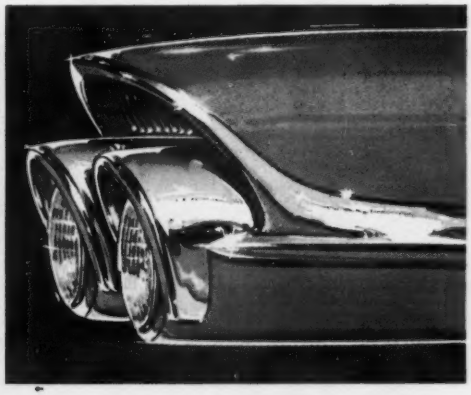
PHELPS DODGE REFINING CORP.

300 PARK AVENUE, NEW YORK 22, NEW YORK

For more data circle 315 on Postpaid Card

Half a century apart... both finished by Acme machines!





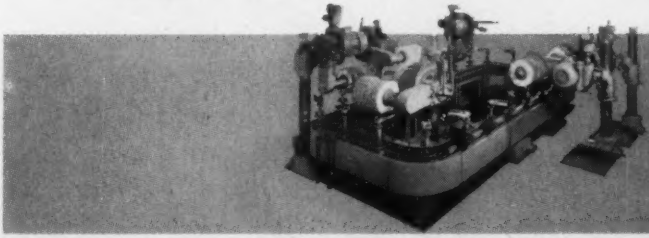
Even back in 1910, part of an owner's pride in his car lay in gleaming brightwork. But polishing and buffing the shiny metal that he loved so well caused manufacturers plenty of headaches. And so they turned to Acme—and Acme has continued to supply the answers to their finishing problems.

Today, Acme engineers combine standard units with a variety of accessories to make custom polishing and buffing machines. Large corporations and small job shops alike use Acme machines to reduce rejects, increase production volume, machine finish odd-shaped pieces.

Every year Acme encounters new finishing requirements—each an individual problem—and solves them. Chances are, we can solve your problem, too. Send for our 16-page catalog today.

50 years of *Polishing Off* your finishing problems

OPEN HOUSE AT ACME DURING THE AES Convention IN DETROIT — JUNE 15-19 — DON'T MISS IT!



Acme universal automatic polishing and buffing machine with camming and rotating fixture arrangement serving eight Acme adjustable heavy-duty buffing lathes having 24" wide wheels. Automatic wheel wear compensation is featured. Operation is finishing automotive taillight component.

ACME MANUFACTURING COMPANY

1400 E. 9 MILE ROAD, DETROIT 20, MICHIGAN

LEADING PRODUCERS OF AUTOMATIC POLISHING AND BUFFING EQUIPMENT SINCE 1910

For more data circle 316 on Postpaid Card

Now-you
the best

can have Electrolytic Cleaners ever developed

REDUCE REJECTS! REDUCE RE-RUNS! INCREASE PRODUCTION!

There is a DETREX process for all your cleaning needs—
Zinc, Steel, Brass, Copper, Nickel, etc.

"Progress" is another word for DETREX. By continuing research in the laboratory and in the field, plus a constant awareness of new methods and techniques, DETREX has developed cleaning processes for the Electroplating industry that have been needed for years.

These new processes assure absolute removal of buffing and polishing compounds, and all other intentional soils, with your present equipment.

To keep pace with progress let a DETREX Service Engineer give you complete information—write today to:

DETREX DETREX CHEMICAL INDUSTRIES, INC.
Box 501, Dept. PF-659, Detroit 32, Michigan

See Us at Booths 63 and 64 Industrial Finishing Exposition, Detroit Artillery Armory

For more data circle 317 on Postpaid Card

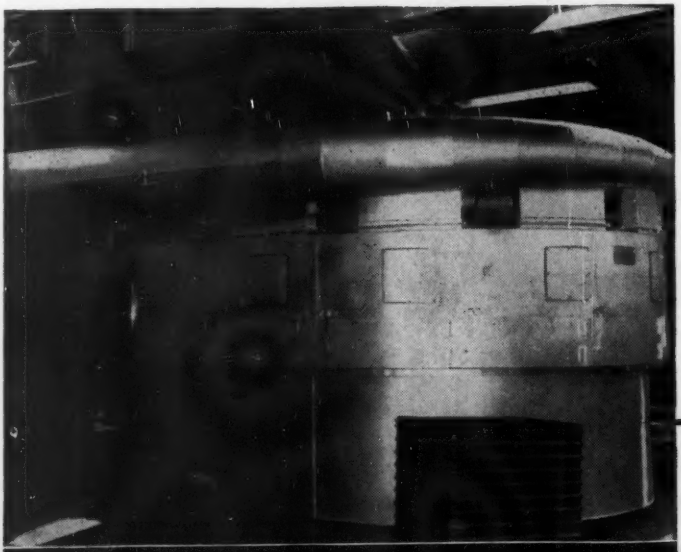
KIRK AND BLUM
FUME CONTROL SYSTEM
Saves 5 Ways..

1. REDUCES AIR VOLUME
2. LOWERS MAINTENANCE COSTS
3. CUTS REPLACEMENT COSTS
4. IMPROVES WORKING CONDITIONS
5. ELIMINATES DAMAGE TO OTHER EQUIPMENT

In large and small plants, Fume Control Systems engineered, fabricated and installed by KIRK & BLUM show substantial savings by increasing the life of costly plating equipment.

Here, a hood with convenient access openings encircles the tanks — preventing cross currents and reducing air volume requirements.

Fumes are picked up at the outside of the tank, clean air is drawn over the machine's mechanism in the center. This keeps damaging corrosive fumes away from costly moving or mechanical parts.



KIRK & BLUM Fume Control on an Automatic Plating Machine in a noted auto ignition parts plant. Note hinged anode access and inspection doors just above tank top.

Write for Booklet F, showing typical installations.

The Kirk & Blum Mfg. Co.,
3116 Forrer Street,
Cincinnati 9, Ohio

For more data circle 318 on Postpaid Card

GREATEST ADVANCE IN PLASTISOL SCIENCE

"Crash" program makes history! Completely new formulation concept develops surprise super-coating. New XL-12 Heat-Fusible Plastisol, laboratory and field-test proven to exceed all existing performance standards! Challenges comparison.

Beats Heat with Plenty to Spare. XL-12 bakes up to *8 hours, and more,* at 365-375° F. *No decomposition or color change on thin contacts.* Assures longer life.

Shrugs Off Plating Solutions! So completely impervious that in production using even *electroless Nickel, XL-12 shows no permeation or build-up after 6 months continuous service.*

Twice as Tough for Double Service! XL-12 resists cutting and abrasion twice as effectively as the best you ever used before. Physical abuse which knocks out others, bounces off XL-12. Test it yourself.

Fabulous Results from Ordinary Curing! Use regular methods and equipment, yet XL-12 cures to tougher, smoother, more lustrous finish than any other plastisol. Won't deteriorate to dull or off-color appearance. Definitely minimizes drag-out to new low. Extends service life.

Other characteristics superior, too. Beats any you ever used, or are now using. Let it prove itself. Compatible with your present plastisol. Available in any color. Don't risk delay in getting your order out for *new XL-12.*

ORDER NOW

The G.S. Plastics Co.

15583 Brookpark Rd., Cleveland 35, Ohio

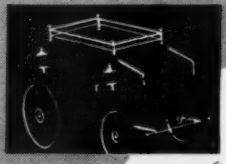
Telephone: CLearwater 2-4770

For more data circle 319 on Postpaid Card

HARSHAW

60 years

THROUGHOUT THE PAST 60 YEARS, THE HARSHAW RESEARCH LABORATORIES HAVE PROVIDED MANY DEVELOPMENTS AND IMPROVEMENTS WHICH HAVE SERVED TO PROMOTE THE GROWTH OF THE ELECTROPLATING INDUSTRY. INCLUDED AMONG THESE MANY ADVANCEMENTS ARE THE FOLLOWING OUTSTANDING EXAMPLES:



1927 Rolled depolarized nickel anodes.

1934 NIBRITE...The first commercial bright nickel electroplating process accepted by the automotive industry.

1935 ACID TIN ADDITION AGENT developed.

1936 XXX CAST CARBON ANODES...This special composition carbonized nickel anode was developed for use in bright nickel solutions.

1937 METAL FLUOBORATES used commercially for electroplating.

1945 PERFLOW...The first truly leveling, sulfur free nickel deposit.

1946 GRANULAR NICKEL SALTS...fine crystal free flowing single nickel salts of high purity.

1952 PERGLOW...Outstanding bright nickel with excellent leveling.

1953 PERFLOW-PERGLOW DUPLEX Nickel plate with unmatched corrosion resistance.

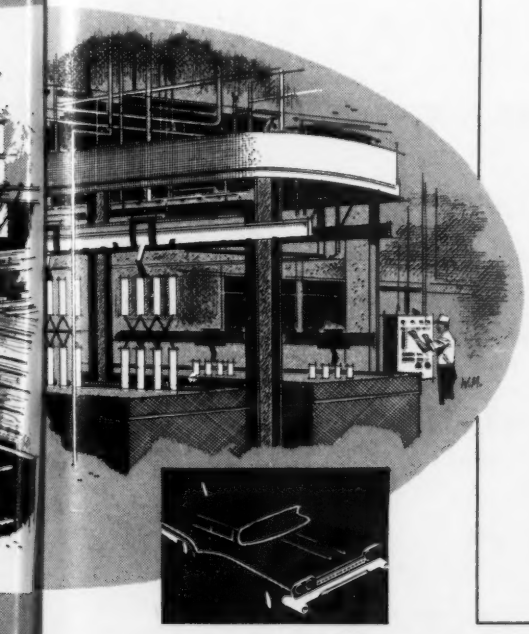
1955 AIR AGITATION...Adaptation for use in Harshaw nickel processes.

1958 CYNOREX COPPER...Exceptionally simplified bright cyanide copper process.

We will continue to offer platers complete service, including full programs of research and development in addition to complete plating processes, anodes, and chemicals

working for Platers

Nickel salts, nickel anodes, and cyanide of potash were Harshaw products produced for the Plating Industry as early as 1899. This modest beginning grew continuously to where our service to Platers includes full programs of research and development, many plating processes, and a complete line of chemicals and anodes. We will be happy to send further information on any of the items listed here—ask us for it.



HARSHAW PLATING PROCESSES:

Acid Tin
Tin Fluoborate
Lead Tin Alloy
Lead Fluoborate
Cadmium Fluoborate
Copper Fluoborate
Nickel Fluoborate
Cynorex Copper (High Speed Cyanide)
Cuprex Copper (Acid)
Perglow Bright Nickel
Nubrite Bright Nickel
Nubrite Bright Nickel (Air Agitated)
Airglow Bright Nickel
Modified XXX Bright Nickel
Perflow Semi-Bright Nickel
Perflow Semi-Bright Nickel (Air Agitated)
Perflow-Perglow Duplex Nickel
Lead — Tin Alloy Plating
Nibrite Barrel Nickel
Super Nibrite Barrel Nickel

CHEMICALS AND ANODES FOR MOST PLATING NEEDS:

Acid Tin Plating Addition Agent
Activated Carbon
Airglow Nickel Plating Addition Agents
Anocaps — Rubber Anode and Hook Protectors
Bags, Anode
Baskets, Anode
Boric Acid
Cadmium Ball Anodes
Cadmium Fluoborate
Cadmium Oxide
Cadmium Plating Addition Agent
Caustic Soda
Caustic Potash
Chromic Acid
Containers, Ball Anode
Copper Ball Anodes — Forged and Cast
Copper Cyanide
Copper Fluoborate
Cynorex Copper Plating Addition Agents
Cuprex Copper Plating Addition Agents
Filter Aid
Fluoboric Acid
Hydrofluoric Acid
Hydrofluosilicic Acid
Hooks, Anode
Lead and Lead Alloy Anodes
Lead Fluoborate
Lead Plating Addition Agents
Nibrite Barrel Nickel Plating Addition Agents
Nickel Acetate
Nickel Anodes — Rolled and Cast
Nickel Anodes — Toll Cast
Nickel Carbonate
Nickel Chloride
Nickel Formate
Nickel Fluoborate
Nickel Salts, Single
Nubrite Nickel Plating Addition Agents
Perflow Nickel Plating Addition Agents
Perglow Nickel Plating Addition Agents
Potassium Cyanide
Potassium Stannate
Rochelle Salts
Silver Cyanide
Sodium Cyanide
Sodium Stannate
Super Nibrite Barrel Nickel Plating Addition Agents
Tin Aluminum Alloy Anodes
Tin Anodes — Ball and Cast
Tin Chloride
Tin Fluoborate
Tin Sulfate
XXX Bright Nickel Plating Addition Agents
Zinc Anodes — Ball, Basket Type and Cast

THE HARSHAW CHEMICAL COMPANY

1945 EAST 97th STREET • CLEVELAND 6, OHIO

Chicago 32, Illinois • Cincinnati 13, Ohio • Cleveland 6, Ohio • Detroit 28, Michigan
Hastings-On-Hudson 6, N.Y. • Houston 11, Texas
Los Angeles 22, Calif. • Philadelphia 48, Pa. • Pittsburgh 22, Pa.

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on its 50th
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OVENS OF ALL TYPES

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BATCH FINISHING SYSTEMS

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FLUX DRYING OVENS
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LABORATORY OVENS
Cabinet Portable

Write for specific information
to meet your specific requirements

INDUSTRIAL OVENS, INC.
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CLEVELAND 11, OHIO

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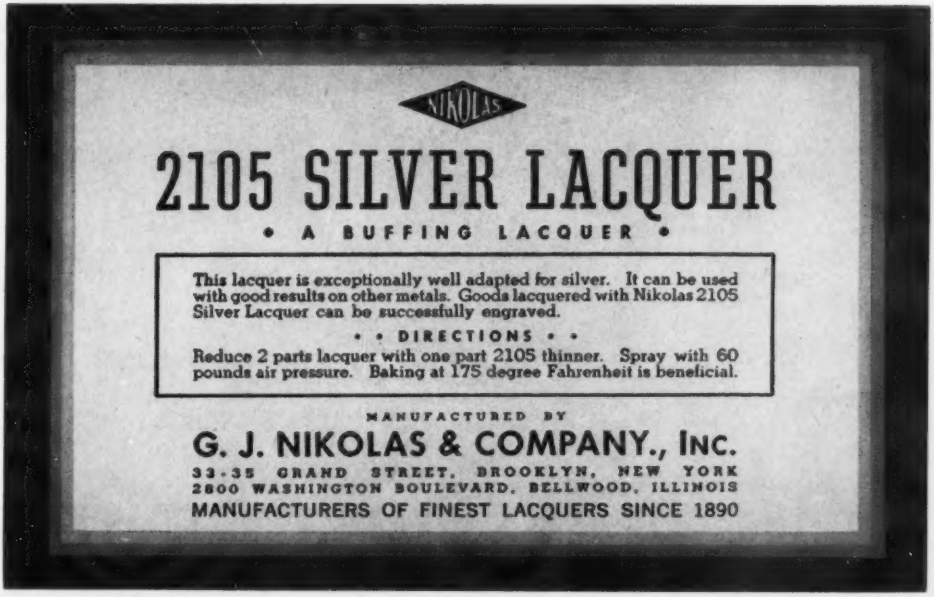
QUALITY THAT SPEAKS FOR ITSELF

This Label is used for the finest clear lacquer yet produced for — Plated Goods — Silver Nitrate Films — Holloware — Cellulose Acetate Butyrate Plastic — Vaporized Metal Coatings — and many others.


NIKOLAS
2105 SILVER LACQUER
• A BUFFING LACQUER •
This lacquer is exceptionally well adapted for silver. It can be used with good results on other metals. Goods lacquered with Nikolas 2105 Silver Lacquer can be successfully engraved.
• • DIRECTIONS • •
Reduce 2 parts lacquer with one part 2105 thinner. Spray with 60 pounds air pressure. Baking at 175 degree Fahrenheit is beneficial.
MANUFACTURED BY
G. J. NIKOLAS & COMPANY., INC.
33-35 GRAND STREET, BROOKLYN, NEW YORK
2800 WASHINGTON BOULEVARD, BELLWOOD, ILLINOIS
MANUFACTURERS OF FINEST LACQUERS SINCE 1890

- **Fast Drying**
- **Water White**
- **Crystal Clear**
- **Non-Discoloring**
- **Excellent Adhesion**
- **Mar-Resistant Hardness**

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Manufacturers of Finest Lacquers Since 1890

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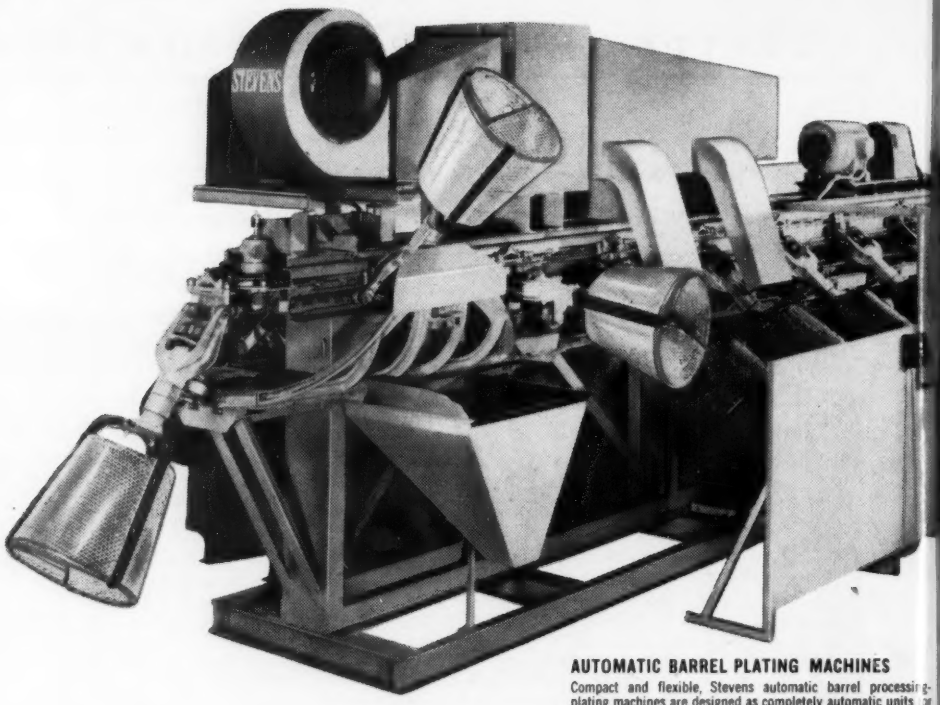


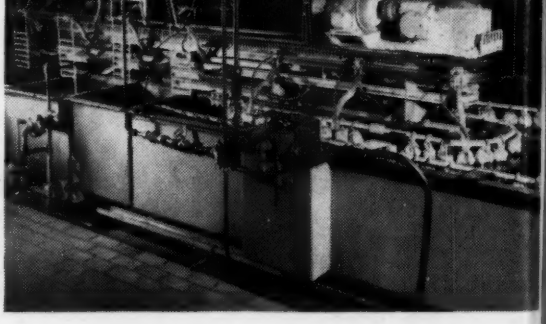
AUTOMATIC BARREL PLATING MACHINES

Compact and flexible, Stevens automatic barrel processing-plating machines are designed as completely automatic units for integrated manufacture. They provide for the most economical and rapid plating of small parts.

STEVENS...TIME-TESTED SOURCE

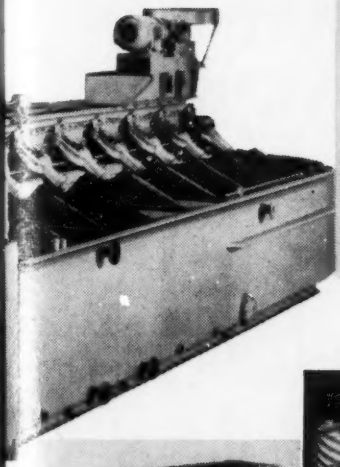
For more than fifty years, Frederic B. Stevens Inc. has been a leader in the development and sale of prefinishing and plating equipment and supplies. If you have parts to buff, polish, clean and plate, this experience is yours for the asking —and naturally the equipment to do this work incorporates the latest techniques for high production and lower costs.

This Stevens catalog in miniature is an example of our wide range of equipment and supplies. Pick out what you need — then get in touch with your local Stevens representative. He'll tell you what you want to know—specifications, prices, delivery dates, everything.



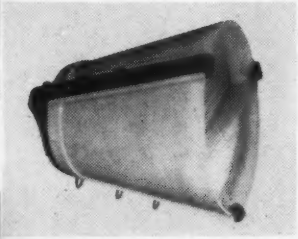
LITTLE STEVE PLATING MACHINES

Almost every electroplater likes the "Little Steve." It's tops for such applications as electroplating, anodizing, enameling bright dipping and phosphating. "Little Steve" can fit into almost any existing factory layout.



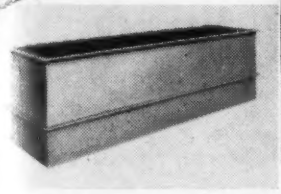
ROTO-FINISH VIBRATRON

New and revolutionary method for fast mechanical finishing. Entire abrasive mass is agitated so that media are used more efficiently. Equipment proved. Minimum wear. See your Stevens representative for details.



POLY-CARB BARRELS

New, lighter, stronger, longer lasting oblique barrel cylinders are now introduced by Stevens. Withstand temperatures upwards of 250°. Stevens also furnishes barrels in Plex-i-glas, Tempron and Plastisol-covered steel.



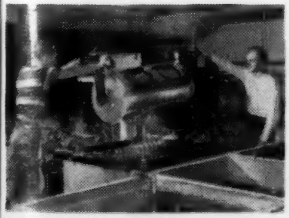
STILL TANKS

Stevens can supply you with still tanks built of steel, stainless steel, aluminum, also Koroseal lined, rubber lined, lead lined. Stevens will design special purpose tanks for specific needs.

BUFFING-POLISHING COMPOSITIONS

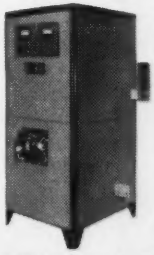
Stevens can furnish either liquid or bar compositions for every use from coloring thin gold flash to buffing nickel-plated bumpers. Ask for the Stevens L. V. compositions catalog.

FOR FINISHING and PLATING NEEDS



HORIZONTAL BARRELS

Where the situation is appropriate for horizontal barrel lines, Stevens will engineer and supply such systems for you. Cylinders are furnished in Tempron or Plex-i-glas.



SILICON OR SELENIUM RECTIFIERS

Highly efficient Stevens rectifiers are built for tough use over long periods of time. A large selection of standard models is available. Special models built on order.

PLATING AND FINISHING SUPPLIES

Chemicals and supplies for all plating and finishing operations. Anodes, cleaners, filters, buffs, compositions and Hydra-Blast supplies and equipment. Prompt delivery of whatever quantity you need is assured from your nearest Stevens branch.

frederic b. **STEVENS,** inc.

DETROIT 16, MICH.

BUFFALO CHICAGO DETROIT CLEVELAND
DAYTON NEW HAVEN INDIANAPOLIS SPRINGFIELD (OHIO)

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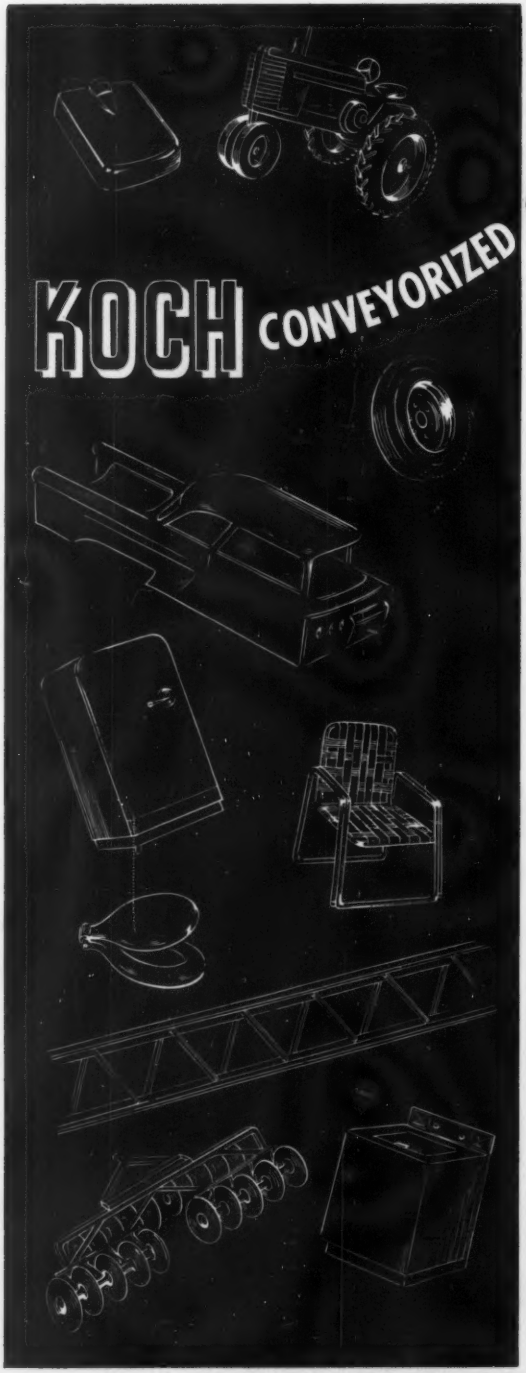

SYSTEMS ARE USED TO finish almost everything

FROM TRUSSES to transistors, Koch systems move a multitude of products through the most important phase of manufacture . . . *finishing!* Koch Complete Finishing Systems are designed and engineered by experts of long experience. Surface preparation, paint application, in fact all finishing problems are readily solved by Koch Engineers.

Learn how you can improve your production and your product. Write for the Koch story of metal finishing systems . . . case histories of your contemporaries and competitors . . . how *they* profited by installing KOCH COMPLETE FINISHING SYSTEMS.

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NEW NORDALL emulsion cleaner locks out rust safely!

Here is a remarkable new emulsion cleaner that protects against rust longer—and without fire hazard, too! . . . Wyandotte's NEW NORDALL®!

Designed for spray cleaning steel, cast iron, and other metals either hot or cold, NEW NORDALL protects for up to *six weeks* in plant atmospheres. Perfectly suited for rust prevention between machining operations!

Non-evaporating even at high temperatures, NEW NORDALL is non-foaming in high-pressure, turbulent washers. And NEW NORDALL has a higher, very safe flash point — over 300° F! And it's nontoxic and essentially odorless.

For details of this extraordinary rust-proofing emulsion cleaner, call in your Wyandotte representative soon. TODAY, perhaps? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

Wyandotte
CHEMICALS
J. B. FORD DIVISION

THE BEST IN CHEMICAL PRODUCTS FOR METAL FINISHING

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In electrotyping, plating rotogravure rolls, electroforming, "Plus-4" Copper Anodes cut plating costs

Electrotypers have discovered that, in addition to eliminating the use of bags and diaphragms, they can place "Plus-4" (Phosphorized Copper) Anodes closer to the cathodes to speed up the plating cycle 30% or more with the same power input—and still obtain a smooth deposit. As an alternate, power can be reduced by one third with an equal reduction in resistance and generation of heat to obtain finished electros in the same plating time. This is an important advantage when thermoplastic plates or molds are used and tanks must run no higher than 95 F.

Makers of rotogravure rolls have found that "Plus-4" Anodes provide a much finer, smoother surface for polishing and etching, and retain the quality of the light tones in runs of over one million impressions on a single set of design cylinders.

In addition, they report significant reductions in cost. One publisher found that he produces superior rolls with less labor, and a reduction of 18 to 20% for materials required in the plating process. Another reports he gets a dividend of eight extra rolls for each tank load of "Plus-4" Anodes. And still another has found a 15% saving in over-all costs.

In electroforming operations, "Plus-4" Anodes—by eliminating the most prevalent acid-copper plating difficulties—have made it practical to produce many new products. Their ability to provide a smooth, dense deposit relatively free from growths and blemishes made possible relatively thick shells for molds used in making rubber and plastic articles, and in intricate precision parts for electronic use. Electroformers report operating economies similar to those found in the graphic arts field.

WRITE FOR INFORMATION on how you can obtain a test quantity to supply one tank. Address: The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario. 59104

ANACONDA®

"PLUS-4"® ANODES Phosphorized Copper

Made by The American Brass Company

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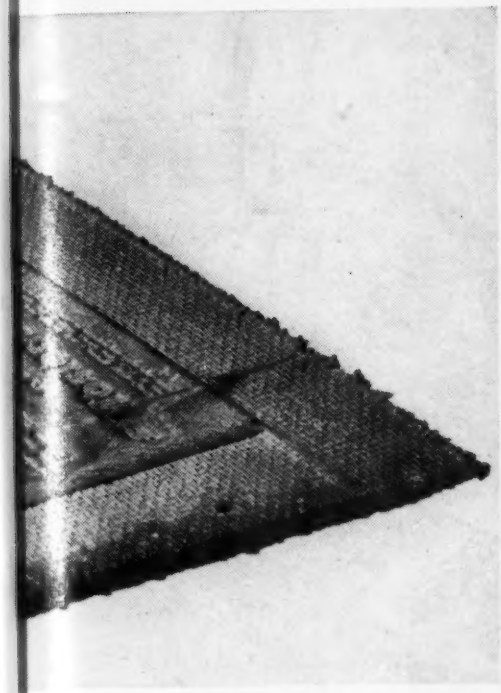
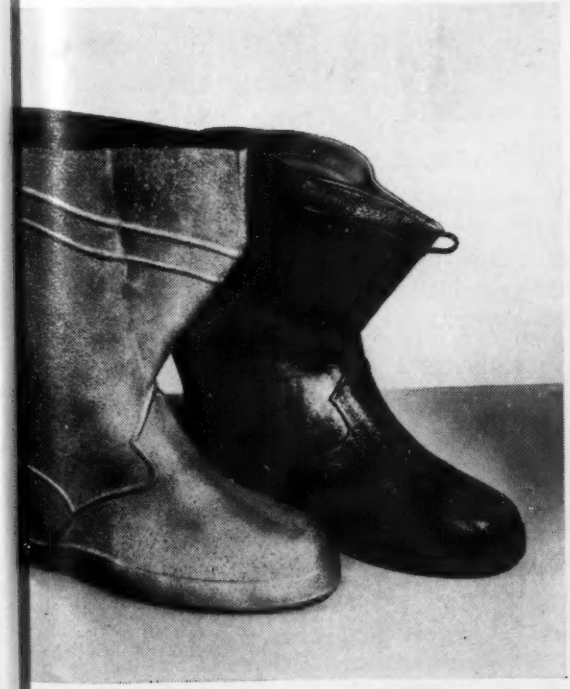
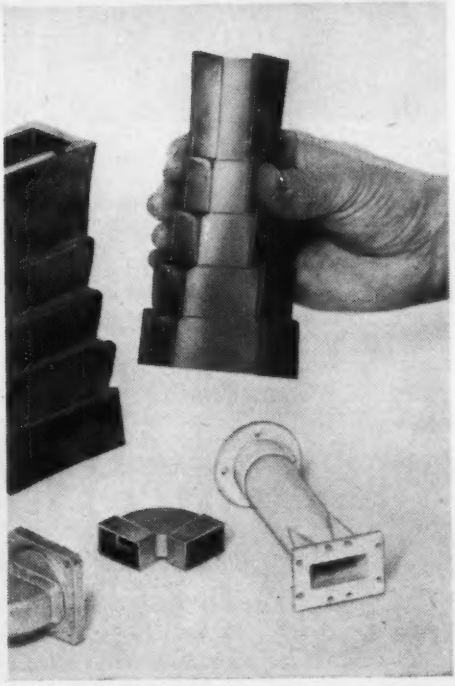
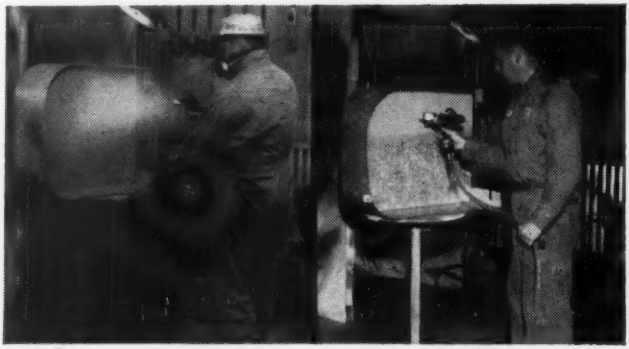






airless*
SPRAY COATING

*Spray Painting Without Air



Spray Painting With Air — Airless

This new spray painting process (without air) will minimize your over-spray problems, reduce health and fire hazards, cut maintenance and clean-up costs, save paint, time and labor as well as reduce your auxiliary painting equipment requirements.

Over and above these advantages . . . a Better Finished Product is the final result. See it at the show.

YOU'LL SEE IT AT THE SHOW!

in operation at

BOOTH 89-C
5th Industrial Finishing Exposition
Detroit, Mich.
June 15-19
1959

Write for Airless Spray Painting brochure.

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FORMERLY BEDE PRODUCTS CORPORATION

THE BEST IN SPRAY COATING EQUIPMENT

AMHERST, OHIO — YUKON 8-4473

In Canada: 864 Pape Ave., Toronto, Ontario

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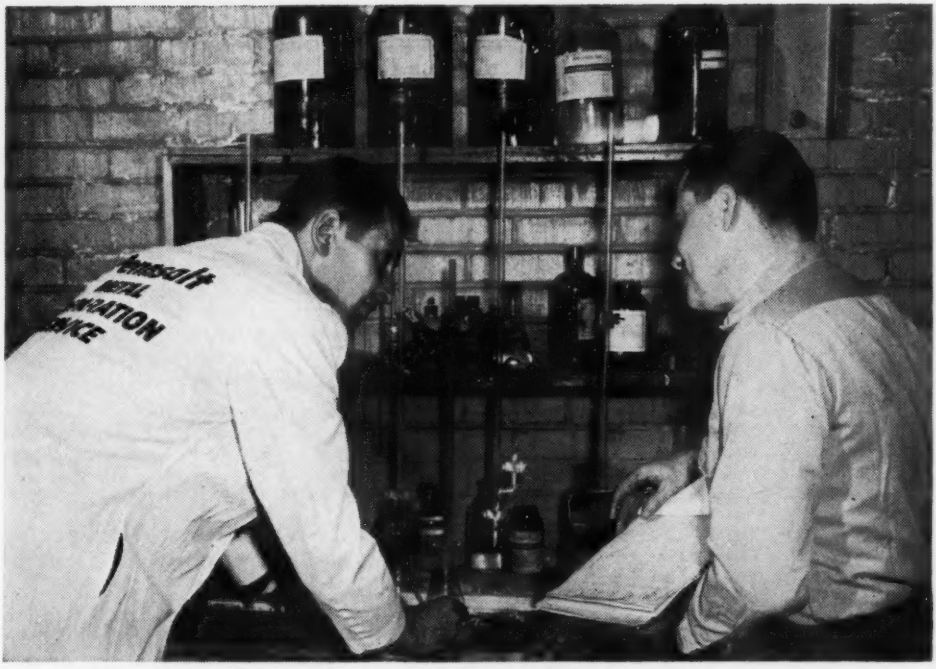

Pennsalt PLANNED SERVICE

helps you get higher efficiency, economy, quality for **"a better start for your finish®"**

Pennsalt's Metal Preparation Service Plan gives you complete, personalized service by a nation-wide staff of trained specialists. You get periodic surveys of your processes . . . help in modernizing with automatic equipment . . . installation and start-up aid . . . laboratory analyses of your special problems . . . fast emergency service . . . plus other important aids to better finishing.

Service like this . . . exclusive from Pennsalt . . . is another way you profit from Pennsalt's "system approach" to metal surface preparation. Pennsalt supplies a complete line of quality processing compounds, and a plant-proved line of automatic surface-treating machines . . . integrates chemicals, machines and service to help you get superior finishing with top economy.

Write Today

for your copy of this booklet on Pennsalt's Metal Preparation Service Plan, or see your Pennsalt representative for more information on Pennsalt service, materials or machines. Write to Dept. 161.

METAL PROCESSING DEPARTMENT

PENNSALT CHEMICALS CORPORATION

East: 3 Penn Center, Philadelphia 2, Pa.
West: 2700 S. Eastern Ave., Los Angeles 22, Calif.

Pennsalt Chemicals ESTABLISHED 1850

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UDYLITE

. . . to make your 1959

*in Detroit—the Statler Hilton Hotel

AT THE CONVENTION...

BE OUR GUEST! We invite you to join us as we resume two pleasant Udylite customs that have become AES Convention traditions over the past few years. You are most cordially invited to be our guests at Udylite's headquarters in the Statler Hilton Hotel and at Udylite plants in the Detroit area. We have arranged an entertainment schedule of which we trust you'll fully avail yourself during the Convention in Detroit, June 15 through 19.

THE UDYLITE HOSPITALITY CENTER. We look forward to seeing you for cocktails in the Michigan Room of the Statler Hilton on Monday, Tuesday and Thursday, June 15, 16 and 18 from four to six p.m. Sparkling entertainment will feature the two outstanding personalities of Jeanne Darr and Elena Santa.

Jeanne Darr, singing comedienne

Elena Santa, beauty keyed to music

THE UDYLITE—AES BALL

Carrying on another happy Udylite tradition, you are promised a memorable night's entertainment when we welcome you to the beautiful Terrace Room of the Statler Hilton. Detroit's most outstanding musical entertainment will be afforded by the nationally famous Singing Schoolteachers, the Fenby-Carr band.

The Terrace Room of the Statler Hilton in Detroit

The Fenby-Carr band, Detroit's famous Singing Schoolteachers

If you would make your 1959 AES Convention trip a complete success, you will not fail to join us for all four functions on the three days that highlight the Udylite social calendar. We look forward to seeing you.

world's largest plating supplie

EGOES ALL OUT!
9Convention* memorable

...Detroit Artillery Armory, June 15 thru June 19

AT THE EXPOSITION...

Be Sure to see the most fascinating and unusual display in the whole show, Udylite's unique presentation of its entire operation. And we really mean *unique;* nothing like this has ever been seen at any convention. You're sure to want to stop in at this first-time-anywhere exhibit every time you visit the Exposition Hall. AND there are some very special surprises waiting for you when you get there. Here also you will have an unparalleled opportunity to:

SEE Plating Automation in Operation . . . Udylite's sensational new V.I.P. single control conveyor.

SEE The Udylite Cyclemaster . . . greatest advance in fully automatic plating equipment today in action.

SEE The full story behind Udylite's vast million dollar research and experimental program at work for you.

SEE The complex Udylite electrical manufacturing assembly line producing a wide range of Udylite developed equipment.

SEE The Miracles of Project Alert in the revitalization of worn and obsolete equipment to save countless dollars for you.

SEE The whole Udylite production story . . . A specialized approach to the many problems of metal finishing.

Whatever else you do, DO NOT miss this unique Udylite presentation of the finest and most complete Research, Engineering and Manufacturing Facilities. Be sure to visit us during the convention June 15 thru 19.

the **udylite** corporation

detroit 11, michigan

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AA • AK • AL • AM • AP • AZ • B • BR • CD • DO • EL • FE • 320B • WS • QC • PS • NR • NS • LP • KW • HS • HD-N • HD • GM
ST • WC • WM • LixElec • X-460 • Lixol 536 • Lixol Zn • X-460M
SOAK
SPRAY
ELECTRO
CLEANERS
to broaden your cleaning capabilities

You can boost your competitive advantage, *with equipment now in your shop,* by relying on the complete Cowles line of metal finishing chemicals—over 100 standard Cowles products and special formulations to handle difficult process conditions on all types of metals.

Arrange for consultation by writing today . . .
or contact our representatives at Booth 37C, 5th Industrial Finishing Exposition, Detroit, June 15-19

Established 1885

Cowles CHEMICAL COMPANY

7016 Euclid Avenue • Cleveland 3, Ohio

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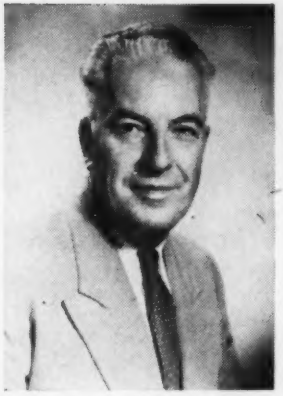
Welcome to A. E. S. Golden Jubilee Celebration in Detroit!



On behalf of the Detroit Branch, A. E. S., and the Golden Jubilee Convention Committee, I extend a special invitation to all those associated with the metal products finishing industry to visit our city during the week of June 15 to 19. During that week Detroit will be host to the Golden Jubilee Convention of the American Electroplaters' Society, the Fifth International Conference on Electrodeposition and Metal Finishing, and the Fifth Industrial Finishing Exposition. All these events have been planned specifically for the benefit of people in the finishing industry.

Conventioners will have an opportunity to hear more than 40 papers, to be presented in eleven educational sessions. Authors of these papers are prominent authorities on finishing from the United States and ten foreign countries.

Finishers who attend the five-day convention can also see the products of approximately 135 manufacturers of finishing equipment on display at the Industrial Finishing Exposition. Many of these products are new and this is an excellent opportunity to see demonstrations and talk to technically qualified representatives of the exhibitors.

To further enhance the opportunity for learning during this busy week, the Detroit Convention Committee has arranged visits to "Big Three" automotive plants and laboratories.

The usual social activity will fill the "leisure" hours for the finishers who attend the A. E. S. Golden Jubilee Celebration. Highlights include the Millionaire's Party, Ox Roast and the traditional Banquet and Floor Show.

The ladies will be entertained by luncheons at the Detroit Yacht Club, Devon Gables, Dearborn Inn and Ford Motor Company. The Ladies' Program also includes a lake cruise, automobile styling show and tea at the Chrysler Corporation and a trip through Greenfield Village.

We hope to see you in Detroit!

Wright W. Wilson
—GENERAL CHAIRMAN

Convention Timetable

(All events at Statler-Hilton unless otherwise specified)

Sunday, June 14

3:00-5:00 P.M.—Ladies' Tea (Sponsored by Siefen Compounds, Inc.), English Room.

8:00 P.M.—Golden Jubilee Get-Together Party. Grand Ballroom.

Monday, June 15

10:00 A.M.—Grand Opening, Golden Jubilee Convention. Grand Ballroom.

Call to Order: Wright W. Wilson, General Chairman.

Invocation: Rev. Canon Irwin C. Johnson, St. John's Episcopal Church, Detroit.

Detroit's Welcome: Hon. Louis C. Miriani, Mayor of Detroit.

A.E.S. Response: National President Herberth E. Head.

Michigan's Greetings: Hon. G. Mennen Williams, Governor of Michigan.

Awards: Announcement of winner, Scientific Achievement Award, by Dr. Abner Brenner, chairman, Selection Committee.

Keynote Address: Irving A. Duffy, vice president, Ford Motor Co.

Dr. William Blum

Irving A. Duffy

Registration Information

Sunday, June 14	1:00 to 8:00 P.M., Foyer, Statler-Hilton.
Monday, June 15	8:30 A.M. to 5:30 P.M., Foyer, Statler-Hilton.
	1:00 to 5:00 P.M., Artillery Armory.
Tuesday, June 16	8:30 A.M. to 1:00 P.M., Foyer, Statler-Hilton.
	10:00 A.M. to 5:00 P.M., Artillery Armory.
Wednesday, June 17	8:30 A.M. to 1:00 P.M., Foyer, Statler-Hilton.
	10:00 A.M. to 5:00 P.M., Artillery Armory.
Thursday, June 18	8:30 A.M. to 1:00 P.M., Foyer, Statler-Hilton.

Hours for Industrial Finishing Exposition

Tuesday, June 16—10:00 A.M. to 9:00 P.M.
Wednesday, June 17—10:00 A.M. to 9:00 P.M.
Thursday, June 18—10:00 A.M. to 4:00 P.M.
Friday, June 19—10:00 A.M. to 6:00 P.M.
(Exposition will be in Detroit Artillery Armory, 15000 W. Eight Mile Rd.)

11:00 A.M.—Business Meeting, Supreme Society. Grand Ballroom.
12:00 Noon—Branch Secretaries' Luncheon. English Room.
12:00 Noon—Speakers' Luncheon. Parlor E.
12:00 Noon—Ladies' Program. Luncheon at Detroit Yacht Club (Co-sponsored by Allied Research Products, Inc. and Pillsbury Chemicals). Plato Party, Mrs. Joan T. Wiarda, hostess. Bus from Statler-Hilton.
2:00 P.M.—Opening Educational Session A, Fifth International Conference on Electrodeposition and Metal Finishing. Grand Ballroom.
4:30 P.M.—Order of Past Presidents, Business Meeting. Parlor F.
6:30 P.M.—Past Presidents' Dinner. English Room.
8:00 P.M.—Open House, Party (Sponsored by Metal Finishing Suppliers' Association), Crystal, Grand and Founders' Ballrooms. Sheraton-Cadillac.

Tuesday, June 16

8:00 A.M.—Speakers' Breakfast. Parlor E.
9:00 A.M.—Educational Session B, International Conference. Grand Ballroom.
9:00 A.M.—Educational Session C, International Conference. Michigan Room.
9:30 A.M.—Plant Visit, Ford Motor Company (Rouge Plant), Dearborn, Michigan. Bus from Statler-Hilton.
11:00 A.M.—Ladies' Program. Trip to Dearborn Inn—Luncheon and Entertainment (Sponsored by Oakite Products, Inc.), followed by Tour of Edison Institute and Greenfield Village. Bus from Statler-Hilton.
12:00 Noon—Branch Librarians' and Educational Committee Luncheon. English Room.
12:00 Noon—Cincinnati Alumni Luncheon, Sheraton-Cadillac Hotel.
12:00 Noon—Speakers' Luncheon. Parlor E.
2:00 P.M.—Opening Ceremony, Fifth Industrial Finishing Exposition, Artillery Armory.
2:30 P.M.—Educational Session D, International Conference. Artillery Armory.

Wednesday, June 17

8:00 A.M.—Speakers' Breakfast. Parlor E.
8:30 A.M.—Golden Jubilee Golf Tournament (Sponsored by M.F.S.A.) Pine Lake Country Club, Pontiac.
8:45 A.M.—Ladies' Program. Lake St. Clair Cruise on the S.S. Aquarama (Luncheon—Co-sponsored by J. J. Siefen Co. and Northwest Chemical Co.). Bus from Statler-Hilton.
9:00 A.M.—Educational Session E, International Conference. Grand Ballroom.
9:00 A.M.—Educational Session F, International Conference. Michigan Room.
9:30 A.M.—Plant Visit, Chrysler Engineering Laboratory. Bus from Statler-Hilton.

2:00 P.M.—East-West Golden Jubilee Championship Baseball Game. Artillery Armory Grounds.
4:00 P.M.—Outing (Millionaire's Party, followed by Barbecue). Artillery Armory Grounds.

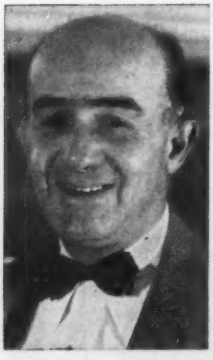
Thursday, June 18

8:00 A.M.—Speakers' Breakfast. Parlor F.
9:00 A.M.—Business Meeting, Supreme Society. Wayne Room.
9:00 A.M.—Educational Session G, International Conference. Grand Ballroom.
9:00 A.M.—Plant Visit, General Motors Technical Center, Warren, Michigan. Bus from Statler-Hilton.
11:00 A.M.—Ladies' Program. Brunch at Devon Gables, Bloomfield Hills (Sponsored by The Udylite Corp.) followed by Auto Styling Show at Chrysler Corporation and Tea. Bus to Chrysler from Statler-Hilton.
12:00 Noon—Speakers' Luncheon. Parlor F.
2:00 P.M.—Business Meeting, Supreme Society. Wayne Room.
2:30 P.M.—Educational Session H, International Conference. Grand Ballroom.
7:00 P.M.—Golden Jubilee Banquet, Floor Show and Dance. Statler-Hilton.

Friday, June 19

8:00 A.M.—President's Breakfast (National Officers and Wives). President's Suite.
8:00 A.M.—Speakers' Breakfast. Parlor F.
8:30 A.M.—Ladies' Program. Ford Motor Company Tour. Bus from Statler-Hilton.
9:00 A.M.—Educational Session I, International Conference. Michigan Room.
9:00 A.M.—Educational Session J, International Conference. Grand Ballroom.
12:00 Noon—Speakers' Luncheon. Parlor F.
2:30 P.M.—Educational Session K, International Conference. Artillery Armory.

Educational Chairmen for Fifth International Conference on Electrodeposition and Metal Finishing



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Educational Program

Session A
Monday, June 15, 2:00 P.M.
Grand Ballroom
Statler Hotel

Dr. T. P. Hoar
Institute of Metal Finishing
Session Chairman

***1—The William Blum Lecture—Education and the Electroplating Industry*, by Dr. William Blum, consultant.**

The electroplating industry must prepare itself for the space age. To do this foremen platers, works chemists, research chemists, plant executives, design engineers and the consumers of plated products must be educated. Ways of doing this will be suggested.

***2—Problems Encountered in the Application of Pre-Finished Metal*, by Dr. S. Wernick, Institute of Metal Finishing.**

Prefinished metals have certain advantages such as possible reduction in cost, but there are problems involved in using such products. Prefinished metals are a challenge to the industry, a challenge that can be met only by improving the quality of finishes for metal.

***3—Development and Application of Ultrasonic Cleaning*, by J. Zucker, Switzerland.**

***4—Experimental Studies of the Electrodeposition of Metals in Narrow Crevices—A.E.S. Research Project No. 17*, by Dr. Henry Leidheiser, Jr., and Mrs. Lucille B. Garmon, Virginia Institute for Scientific Research.**

The first progress report on the results of experiments to determine the importance of variables which influence the distribution of an electrodeposit in narrow crevices. Results are reported for cobalt, copper, iron, nickel, silver, zinc and tin-nickel alloy baths, although most of the research has been conducted with various types of nickel baths.

Session B

Tuesday, June 16, 9:00 A.M.
Grand Ballroom
Statler Hotel

G. Ross Davidson
Canadian Hanson & Van Winkle Co., Ltd.
Session Chairman

***1—A Black Chromium Plating Process*, by Dr. A. Kenneth Graham, Graham, Savage & Associates, Inc.**

A recently developed chromium plating process produces uniform deep black deposits that may be useful in both functional and decorative applications. The bath operates at 150 to 450 a.s.f., 70 to 100 deg. F., with cathode efficiencies of six to 15 per cent. Wear resistance of the deposit is reported to be two and one half to three times that of bright nickel. The black plate may serve as a substitute for hard or porous chromium. For decorative applications, oils, waxes or supplemental organic coatings may be applied to improve the luster. The plate is readily wettable with either oil or water.

***2—Leveling Power of Copper Sulfate Baths with Addition of Complexing Agents*, by Dr. E. Bertorello, Dr. I. R. Bellobono and Dr. A. Scarati.**

A report on the leveling power of acid copper electrolytes containing various organic addition agents that form complexes with cupric ions. Leveling is evaluated for each of these baths after electroplating for various periods of time.

***3—Plating Zinc on Steel from a Pyrophosphate Solution—A Pilot-Plant Investigation*, by Dr. U. F. Marx and D. Povey, Wilmot-Breeden, Ltd.**

Depositing zinc on steel from a zinc pyrophosphate solution: a report on optimum operating conditions. Deposit properties are compared to those for a zinc cyanide solution.

***4—Electrodeposition of Nickel Alloys from the Pyrophosphate Bath*, by Dr. T. L. Rama Char, Indian Institute of Science.**

A complex pyrophosphate bath is used to deposit alloys formed by nickel in combination with various other metals. A detailed study has been made on the effect of variables on cathode efficiency, cathode potential and composition of alloy deposits. Metals alloyed with nickel in this study include tin, copper, zinc, cobalt and iron. Preliminary work indicates possibility of depositing alloys of nickel with manganese, tungsten and molybdenum from this bath.

Session C

Tuesday, June 16, 9:00 A.M.
Michigan Room
Statler Hotel

Leslie L. Diveley
Cutler-Hammer, Inc.
Session Chairman

***1—Chemical Conversion Coatings*, by Robert F. Ayres, Oakite Products, Inc.**

Various types of chemical conversion coatings including oxides, phosphates and chromates are defined, described and compared. The distinction between deposits on the surface and conversion of the surface is illustrated. Experimental data on oxide components, co-precipitants in phosphate coatings and the formation of stable chromium conversion coatings is included. Explanatory theories are discussed.

***2—The Metal Surface Conversion Coating as a Paint Base*, by Dr. Robert C. Gibson, Parker Rust Proof Co.**

Phosphate, chromate and oxide coatings: how they perform their function as a paint base; importance of various processing conditions in producing coatings that will give good performance. Theory of the mechanism of the formation of phosphate coatings is discussed. Description of a process for producing an amorphous oxide-chromate type of coating on aluminum and its alloys. This coating makes aluminum more receptive to paint.

***3—The Accelerated Weathering of Organic Finishes*, by A. A. B. Harvey, Sunbeam Anti-Corrosives, Ltd.**

A description of accelerated tests for paint finishes: exposure to light, heat, moisture and corrosive vapor, singly and in combination; three systems of irradiation, with subsidiary chemical treatments. Correlation with actual weathering and the necessity for careful interpretation of results are discussed.

***4—Surface Texture—Its Influence on Organic Finishing*, by Dr. Walter Stein and D. H. Lloyd, Fisher & Ludlow, Ltd.**

Rejection of painted parts because of poor surface texture may be caused by the metal surface itself or by the failure of the finisher to level the surface with paint. A discussion of the causes of heavy reject rates and things that can be done to reduce number of rejects.

Session D

Tuesday, June 16, 2:30 P.M.
Detroit Artillery Armory

William M. Phillips
Consultant
Session Chairman

***1—The Influence of Physical Metallurgy and Mechanical Processing of the Basis Metal on Electroplating — Ferrous Metal Conditions Affecting the Durability of Watts Nickel Deposits—A.E.S. Research Project No. 14*, by Dr. M. H. Jones, Chih-Yeu Lu, A. F. Mohrnheim and J. Zajdowski, Ontario Research Foundation.**

How the basis metal and its condition affect a Watts nickel deposit. Considered in this report: metallurgical history, non-metallic inclusions, surface conditions resulting from various types of mechanical polishing and deformation caused by stretching. Accelerated corrosion tests show how these factors influence durability of the deposits.

***2—The Nature of Mechanically Polished Surfaces*, by Dr. L. E. Samuels, Defense Standards Laboratory, Commonwealth of Australia.**

Evidence to show that polishing does not occur by the surface flow usually thought to happen during polishing. Instead polishing appears to be the result of an action in which a deformed layer is produced on the surface by a cutting mechanism. The nature of this cutting and its possible influence on electrodeposits are discussed.

***3—Outdoor Corrosion Results with Chromium-Nickel-Chromium Plate*, by Dr. Henry Brown and M. Weinberg, Udylite Corp.**

Results from two- and three-year exposure tests in industrial atmospheres show that Cr-Ni-Cr plate, Cu-Cr-Ni-Cr plate and Ni-Cr-Ni-Cr plate impart excellent corrosion resistance to steel and zinc die castings. Results of these tests are compared with Cu-Ni-Cr plates and Ni-Cr plates of various thicknesses. Cr-Ni-Cr systems in which final plate was high-temperature-type of chromium plate had outstanding resistance to corrosion. Plating procedures used are described.

***4—Improved Corrosion Resistance for Electroplated Die Castings*, by Dr. Charles L. Faust, Hugh R. Miller and William H. Safranek, Battelle Memorial Institute.**

More than 500 parts and panels plated by various methods were tested for corrosion resistance in a program sponsored by the American Zinc Institute. Two of the plating systems tested showed excellent results and suitability for commercial use: copper-duplex nickel-chromium, and copper-bright nickel-bright, crack-free chromium.

Session E

Wednesday, June 17, 9:00 A.M.
Grand Ballroom
Statler Hotel

Clarence H. Sample
International Nickel Co., Inc.
Session Chairman

***1—Corrosion Testing of Electrodeposited Coatings*, by F. L. LaQue, International Nickel Co., Inc.**

Corrosion testing is vital in controlling quality of plating. Tests make it possible to observe the performance of a coating under conditions similar to those that will be encountered in actual use of the part being plated; they are a useful way of evaluating parts in production; they help the research man to evaluate the results of his work and shorten the time needed to prove or disprove a theory. This paper discusses the requirements and possible limitations of tests now being used or proposed.

***2—Experience with the Use of The Corrodkote Test*, by Donald M. Bigge, Chrysler Corporation.**

The Corrodkote Test has proved to be valuable both as a product acceptance test and as a dependable means of evaluating research on copper-nickel-chromium deposits. Excellent correlation has been established between test results and service exposure results.

***3—Sulfur Dioxide Accelerated Corrosion Test—Testing Conditions and Equipment*, by Dr. J. Edwards, British Non-Ferrous Metals Research Association.**

The cabinet in which a sulfur dioxide test is conducted should be thermostatically controlled. A cabinet is described which enables temperature, relative humidity and sulfur dioxide concentration to be kept within recommended limits.

***4—Experience with the Use of the Accelerated Acetic Acid Salt Spray Test (Cass Test)*, by C. F. Nixon, General Motors Research Staff.**

Following a brief discussion of the Cass test and recommended procedures for its use, data are presented to show that results from this test can be correlated with outdoor exposure results well enough to make this method useful for acceptance testing and for evaluating development work. Progress toward better understanding of what happens in the test chamber is reported.

Session F

Wednesday, June 17, 9:00 A.M.
Michigan Room
Statler Hotel

Ralph D. Wysong
Studebaker-Packard Corp.
Session Chairman

***1—Water-Soluble Coatings for Metal Finishing*, by Robert A. Boller, Archer-Daniels-Midland Co.**

Water-soluble resins are available to make paints that have performance and application properties similar to oil-based industrial finishes used today. These paints eliminate fire hazard, can be formulated for use as primer or top coat. Spray application appears to be the most desirable method of coating.

***2—Epon Resins in the Electroplating Industry*, by Harry W. Howard, Shell Chemical Corp.**

Epon-resin-based coatings have good adhesion, flexibility, toughness, and resistance to chemical attack and elevated temperatures. These properties make them useful in the electroplating industry as clear films to protect plated products from tarnish; as stop-off coatings; as coatings for use in protection of equipment and facilities from corrosive chemicals; and as coatings for lining plating tanks and coating racks.

***3—Vinyl Dispersions—Their Use in Metal Finishing*, by Myron Y. Perez, Metal & Thermit Corporation.**

A discussion of vinyl coatings for metals: properties, application techniques, uses, new dispersions in usage now and in the development stage.

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Session G

Thursday, June 18, 9:00 A.M.
Grand Ballroom
Statler Hotel

Dr. S. Wernick
Institute of Metal Finishing
Session Chairman

1—The Effect of Flow Rate and Current Density on the Electrolytic Removal Rate of Iron and Copper from a Watts Nickel Solution, **by Dr. Abraham M. Max and M. L. Whitehurst, R.C.A.-Victor Record Division.**

The electrolytic removal rate of copper from a Watts nickel solution is shown to follow a logarithmic decay curve. The removal-rate coefficient increases with current density over the range of ½ to 16 a.s.f.; it increases with flow rate over the range of six to 50 f.p.m. Iron removal rate is complicated by two factors, the effects of which are described.

2—Chromium in Cyanide Solutions and its Removal, **by Dr. Erich Laue, MacDermid, Inc.**

A new method for removing hexavalent chromium from cyanide plating solutions and precipitating the resulting trivalent chromium is described. The method may be applied to other alkaline plating solutions. A simple method for detection of chromium and testing effectiveness of removal is discussed.

3—The Effect of Shot Peening and Grinding on the Fatigue Strength of Chromium Plated High-Strength Steel, **by Dr. R. A. F. Hammond and C. Williams, Ministry of Supply, Armament Res. and Dev. Establishment.**

Fatigue strength of high-strength steels increases progressively with the intensity of the surface treatment, ultimately reaching the values the unplated specimens would have. The increase in surface roughness resulting from peening at various intensities was measured and the effect of grinding before and after chromium plating to attain a good machine finish was determined. Effect of baking at various stages was also investigated.

4—Some Aspects of the Corrosion of Decorative Plated Coatings, **by Dr. F. A. Lowenheim and W. H. Rowan, Metal & Thermit Corp.**

Current efforts toward improvement of corrosion resistance of decorative plated parts are reviewed. Effects of increasing thickness of copper, nickel and chromium coatings are described. Possible improvement from the use of other coatings is discussed. *(Continued on page 51→)*

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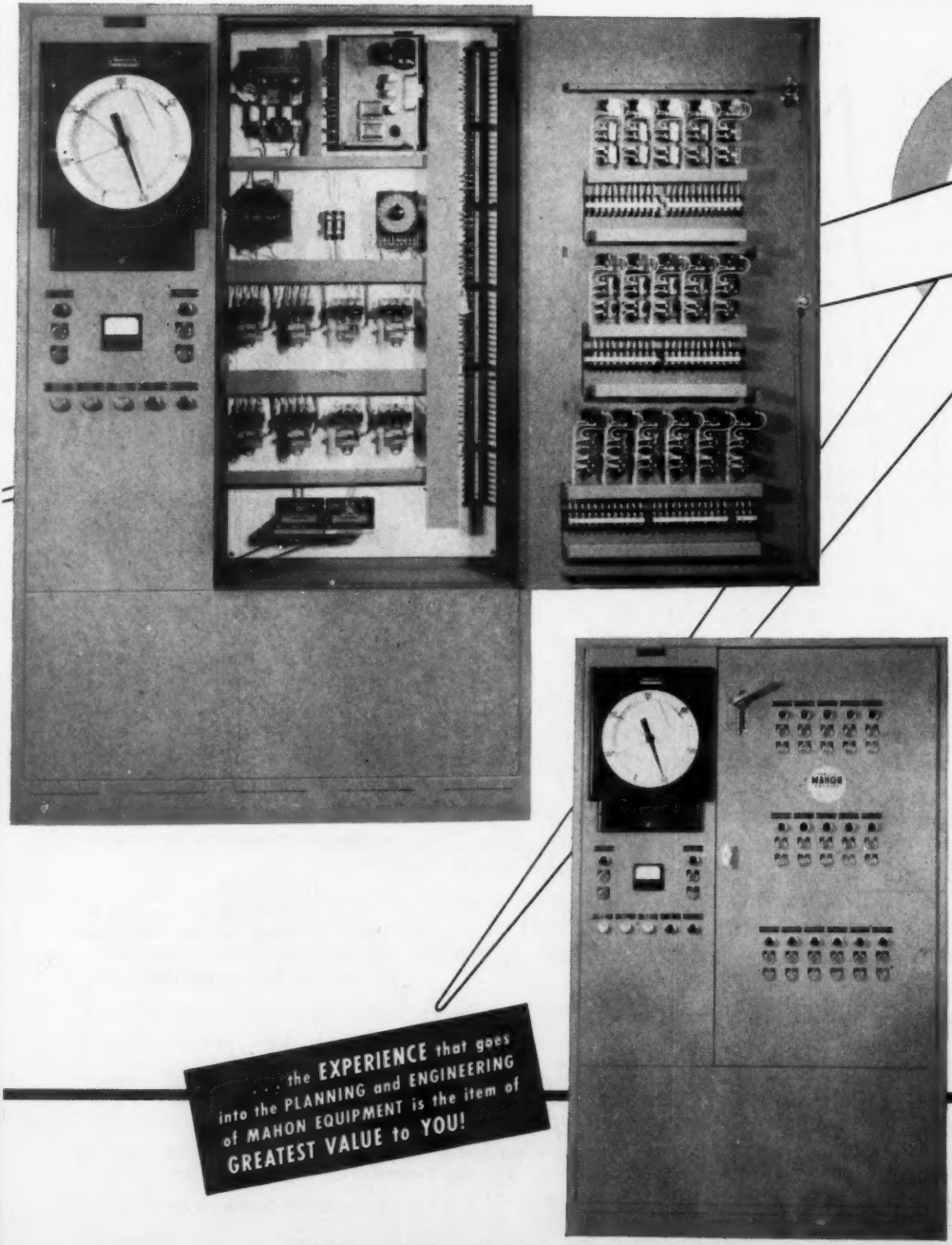

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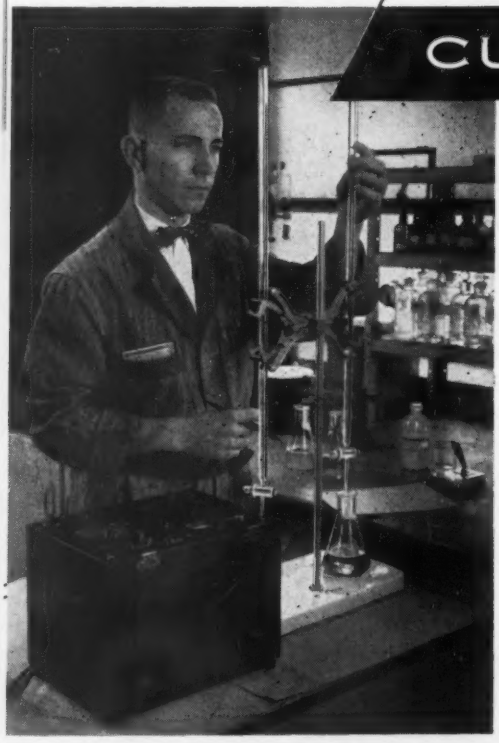

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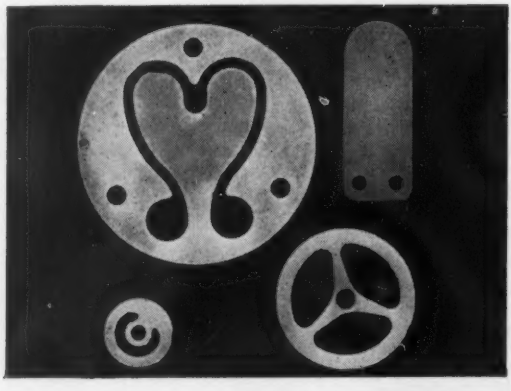

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Session H

Thursday, June 18, 2:30 P.M.
Grand Ballroom
Statler Hotel

Ezra A. Blount
Products Finishing Magazine
Session Chairman

***1—European Bright Anodizing Practice*, by A. W. Brace, Aluminium Laboratories, Ltd.**

Brightness of anodic films depends upon metallurgical composition of the aluminum. Both chemical and electrochemical brightening techniques are discussed. The effect of anodizing and sealing conditions on resistance to corrosion is discussed. Methods of testing anodic films are summarized.

***2—Hydration of Anodic Oxide Films*, by M. S. Hunter, P. F. Towner and D. L. Robinson, Aluminum Company of America.**

A discussion of sealing of aluminum oxide films in boiling water. Usual practices employed commercially do not result in complete filling of the pores. Factors that accelerate or retard rate of hydration of the aluminum oxide film are discussed.

***3—Anodizing Processes for the Production of Very Thick Alumina Films*, by P. LeLong, R. Segond, and J. Herenguel, Trefileries et Laminoirs.**

Two processes developed in France produce thick, hard anodic films at or above temperatures normally used. The electrolytes are made from acid salts and organic acids. Films several hundred microns thick (24 microns equal one mil) can be produced at unusually high current densities.

***4—Developments in the Surface Treatment of Aluminum — Processes and Materials*, by Dr. Richard Lattey, Vereingte Aluminumwerke.**

This paper explains why anodic or chemical brightening is required before bright anodizing of super-purity aluminum. The theory of anodic and chemical brightening is discussed and the role of passivating surface coatings and films is indicated. Anodizing is discussed in a similar manner. Specific processes for brightening and anodizing are discussed.

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Educational Program—A. E. S. Convention (continued)

Session I
Friday, June 19, 9:00 A.M.
Michigan Room
Statler Hotel

A. W. Wallbank
Ionic Plating Co., Ltd.
Session Chairman

***1—Electrochemical Techniques in Modern Metallography*, by Dr. Pierre A. Jacquet, Societe Jacquet-Hispano Suiza.**

The role of electrochemistry in modern metallographic techniques is discussed. An advance combining non-destructive "plug electropolishing" with improved replica production is described. Techniques for preparing surfaces for microscopic examination are shown.

***2—The Present State of Electrolytic Polishing in Europe*, by Robert Mondon, Societe Jacquet-Hispano Suiza.**

The use of electropolishing for decorative applications has been retarded in Europe by unavailability of suitable basis metals. Its widest uses are for deburring, improving corrosion resistance and smoothing metal surfaces for utilitarian purposes.

***3—Electroless Copper Plating*, by Dr. E. B. Saubestre, Enthone, Inc.**

A process of electroless copper plating is discussed with particular reference to coating of plastics in the manufacture of printed circuits. Formulae suitable for solutions that may be used in depositing thin copper mirrors and for depositing one- and two-mil copper coatings.

***4—Some Chemical Polishing Processes — Their Mechanism and Their Application*, by Dr. H. Spahn.**

In the chemical polishing of copper and its zinc and zinc-nickel alloys, the dissolution rate is controlled by the kinetics of the formation of nitrous acid in the viscous layer surrounding the metal. The role of nitrous acid is discussed. Mechanism of polishing zinc, nickel and aluminum is illustrated. Properties of chemically polished surfaces are discussed and compared with properties of surfaces produced by electropolishing.

***5—Influence of Various Surface Treatments on the Resistance to Fatigue of Two High-Strength Aluminum Alloys*, by G. Abadie and G. Vidal.**

Two alloys normally used in production of large aircraft landing gear forgings were treated by chemical milling, electropolishing, anodizing, acid etching and chromate dipping. Fatigue tests were then made.

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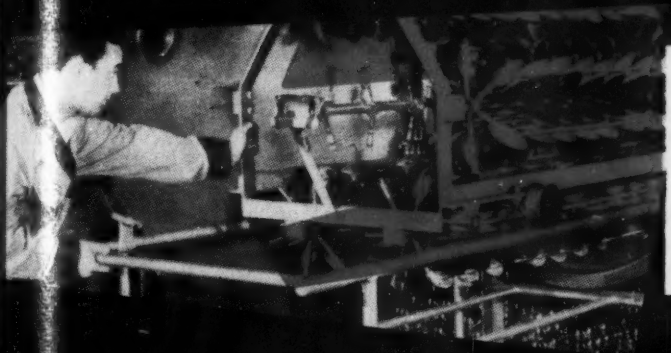

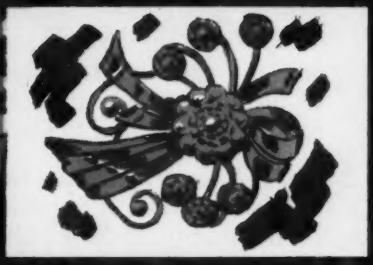

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Session J
Friday, June 19, 9:00 A.M.
Grand Ballroom
Statler Hotel

A. A. B. Harvey
Sunbeam Anti-Corrosives, Ltd.
Session Chairman

***1—The Effect of Metal Preparation on the Performance of Water-Thinned Coatings*, by Ralph A. Williams, Rinshed-Mason Co.**

Seven different types of prepaint treatments were used to prepare metal panels used in these tests. Panels treated by each of these different methods were then primed with four different water-thinned primers and a petroleum-solvent thinned primer, used as a control. Resistance to humidity, salt spray and water immersion were investigated. Film hardness, gloss and flexibility were evaluated.

***2—Vinyls in Modern Industrial Coatings*, by W. H. McKnight, Union Carbide Plastics Co.**

A discussion of vinyl solution coatings, organosols, plastisols: physical and chemical properties, typical applications. A forecast of expected striking developments is presented.

***3—Protecting Silver and Copper against Tarnishing by Means of a Chromate Passivating Process*, by Dr. P. Baeyens and J. L. Melse, N.V. Philips Goeilantensahrieken.**

A report on experimental work designed to improve the method of protecting silver or copper by immersion in hexavalent chromium compounds. To obtain good passivation consistently without interfering with solderability of silver or copper, certain metal complexing agents are added to the hexavalent chromium solution. These help to maintain a defined relationship between the pH of the solution and the potential of the metal solution.

***4—Chromic Acid Anodizing Characteristics of Wrought Aluminum Alloys*, by George E. Best, Solvay Process Div., Allied Chemical Corp., John W. McGraw, Martin Co., and J. G. Hecker, Jr., and R. V. Vanden Berg, Aluminum Company of America.**

Various wrought aluminum alloys were anodized in chromic acid. Voltage, immersion time, bath pH and temperature were varied above and below the standard limits to investigate the effects. Measurements made: current density, coating weight, coating thickness, dielectric strength, salt-spray resistance.

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Session K

Friday, June 19, 2:30 P.M.
Detroit Artillery Armory

Dr. Abner Brenner
National Bureau of Standards
Session Chairman

***1—Barrel Plating with Special Consideration to Protection of Thread Diameters,* by A. W. Wallbank, Ionic Plating Co., Ltd.**

Batch size is important in the selection of barrel plating equipment. Equipment and solutions for barrel chromium plating are discussed. The effect of deposit variation in the load is discussed and reasons are given for adopting the batch average as the criterion of quality.

***2—Ductility in Plated Coatings,* by Dr. Harold J. Read and Dr. Thomas J. Whalen, Pennsylvania State University.**

Ductility of plated coatings is of importance because it affects corrosion resistance and because ductility is required in forming pre-plated strip. New equipment for measuring ductility is described. This self-contained equipment can be operated by unskilled personnel. Effects of bath composition and plating conditions on the ductility of certain plated coatings are shown.

***3—Grain Size Control in Electroforming,* by H. D. Hughes, Metachemical Processes, Ltd.**

***4—Electrodeposits as Resists in Selective Heat Treating,* by R. Scott Modjeska and Simon P. Gary, Scientific Control Laboratories, Inc.**

Mild steel rods partially masked by plating with copper, tin-bronze, tin, silver and nickel are carburized and nitrided. Quality of the resist is then evaluated and compared to other resists. Formulae and operating conditions for plating baths employed and data on heat treating conditions are included.

Floor plan of the Industrial Finishing Exposition showing location of various booths by number is on pages 70-71.

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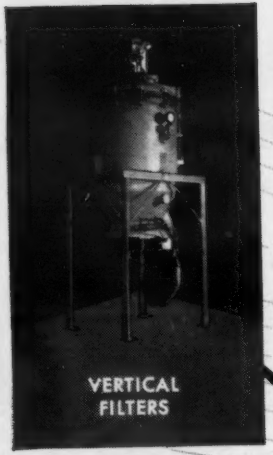
INDUSTRIAL ENGINEERED EQUIPMENT for the PLATING INDUSTRY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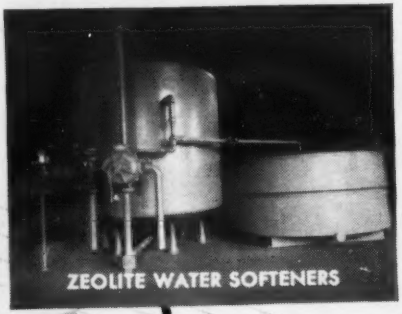
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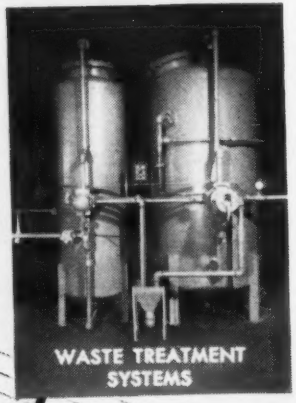
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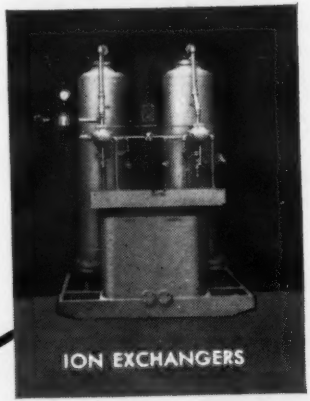
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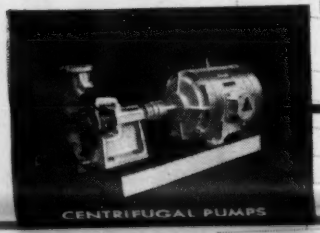
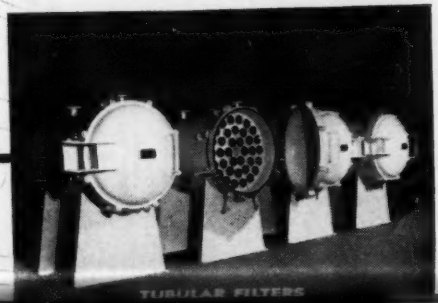

CENTRIFUGAL PUMPS


TUBULAR FILTERS

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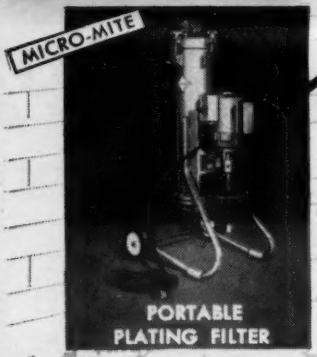

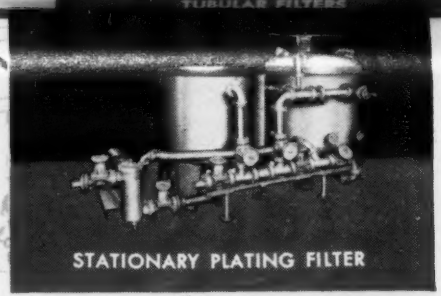

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M. F. S. A. Program

E. W. Couch
Lea Mfg. Co.
President, Metal Finishing Suppliers' Association, Inc.

Dee F. Mosher
Lea-Michigan, Inc.
M. F. S. A. Liaison Representative

Monday, June 15

9:00 A.M.—M. F. S. A. Board of Trustees' Meeting, Sheraton-Cadillac Hotel.

12:00 Noon—Luncheon and Annual Meeting, Crystal Ballroom, Sheraton-Cadillac Hotel.

8:00 P.M.—Open House, sponsored by M. F. S. A., Crystal, Grand, and Founders Ballrooms, Sheraton-Cadillac Hotel.

A buffet supper will be served from 8:00 to 9:00 P.M., followed by dancing until midnight.

Wednesday, June 17

8:30 A.M.—Annual Golf Tournament, sponsored by M. F. S. A., Pine Lake Country Club, Pontiac, Michigan. Greens fees, $5.00. Register with with M. F. S. A. Golf committee in convention registration area. Prizes to award skill and luck.

R. M. Burford, Pennsalt Chemicals Corp., is Golf Chairman.

The Metal Finishing Suppliers' Association, Inc., is an organization of manufacturers and distributors who serve the plating industry. During the 35 years of its life, the M. F. S. A.'s interests have been closely associated with those of the A. E. S. Almost all M. F. S. A. members are A. E. S. members or sustaining members. M. F. S. A. maintains close liaison with the A. E. S. executive board and with the N. A. M. F. Board of Directors.

For more data on advertisement on opposite page, circle 338 on Postpaid Card →

Smoother, denser, more uniform finishes are obtained easily with OFHC Anodes, made from the purest copper commercially produced. OFHC brand quality means low porosity, excellent grain structure, top anode efficiency in both acid and cyanide baths.

OFHC Anodes are an example of quality also meaning true economy. There's more *plating* copper per pound, bags and diaphragms are eliminated, scrap loss is reduced, and solution control is simplified.

For further information, visit the OFHC Anodes Exhibit at the Industrial Finishing Exposition, Booth 230A, or write today.

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N. A. M. F. Program

George W. Taylor, President, National Association of Metal Finishers

Glenn H. Friedt, Jr., General Chairman, 1959 N.A.M.F. Convention

(All events at Statler Hotel unless otherwise noted)

Sunday, June 14

9:30 A.M.-12:00 Noon—Annual membership meeting. Bagley Room.

Monday, June 15

1:30 P.M.-5:00 P.M.—First Management Seminar. Speaker and topic: Joseph H. Lackey, partner, William H. McCoy Co., Detroit, *Pension and Deferred Profit-Sharing Plans for the Small Plating Shop.* Bagley Room.

Tuesday, June 16

10:00 A.M.-12:00 Noon—Second Management Seminar. Speakers and topics: John A. Patton, J. A. Patton Management Engineers, Inc., Chicago, *Wage Incentives for Small Businesses;* Lucas Miehl, Commercial Steel Treating Corp., Detroit, *Profit Sharing for Small Businesses.* Bagley Room.

2:00 P.M.-5:00 P.M.—Third Management Seminar. Panel Discussion, *Incentives Versus Profit Sharing;* participants, Lucas Miehl and John A. Patton. Bagley Room.

7:00 P.M.-8:00 P.M.—Reception, Bagley Room.

8:00 P.M.-9:30 P.M.—Banquet.

Wednesday, June 17

1:45 P.M.-5:30 P.M.—Plant visit sponsored by Plating Institute of Michigan, N.A.M.F. Plants to be toured: Michigan Chrome & Chemical Co.; United Platers, Inc.; Chemical Processing, Inc. By ticket only.

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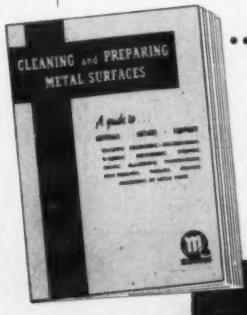

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NEW BOOKS

Preparation of Protective Coatings by Electrophoretic Methods. By A. C. Werner and R. J. Abelson, Vitro Corporation of America for Wright Air Development Center, U. S. Air Force. Order PB 131726 from OTS, U. S. Department of Commerce, Washington 25, D. C. 26 pages. Price is 75 cents.

A process for depositing alloys to serve as intergranular diffusion barriers between the molybdenum and the nickel-chromium layer is described in this report.

After electrophoretic application, multi-layer coatings of 80 nickel-20 chromium and nickel-bonded columbium and titanium carbide provided good oxidation resistance and good erosion resistance. The ballistic impact resistance requirement was fulfilled by inclusion of a 50 per cent dense, 80 nickel-20 chromium layer.

Attempts to incorporate an intergranular diffusion barrier alloy layer for oxidation resistance at 2000 deg. F. proved unsuccessful, although a gold-chromium diffusion barrier layer proved resistant at 1800 deg. F.

Improvements were made in coating techniques to permit coating in one operation rather than two, and coatings were prepared on the 0.5 per

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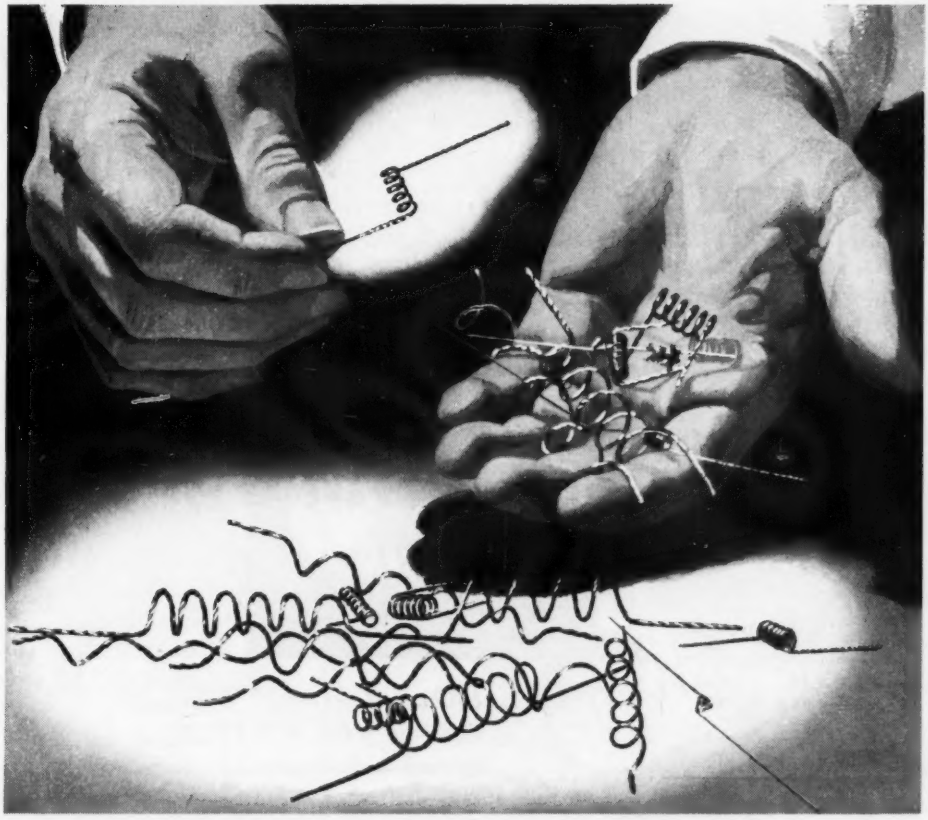

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cent titanium alloy and on wedge-shaped pieces with few failures.

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A Basic Study of Corrosion of Magnesium. By R. R. Addiss and others, Cornell University, for Wright Air Development Center, U. S. Air Force. 57 pages. Order PB 131662 from OTS, U. S. Department of Commerce, Washington 25, D. C. Price, $1.50.

This project was intended to expand understanding of the process of corrosion of magnesium and its alloys through basic study of the structure of the surface of the metal and of the process of formation and structure of surface films appearing during corrosion.

A number of attempts were made to obtain a perfectly clean surface, both by cleaning a contaminated surface and by producing a new, clean surface in vacuum. One attempt with the vacuum approach met with partial success. What was believed to be a clean magnesium crystal was studied by a field emission microscope. Studies were also made of oxidation of surfaces covered with the "first film." These were aimed at measuring the oxidation rate to obtain insight

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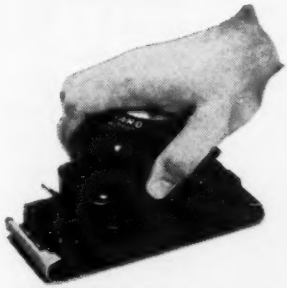
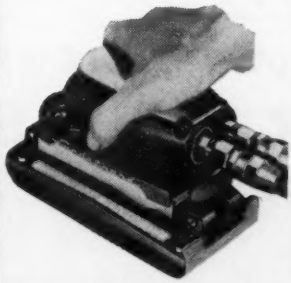
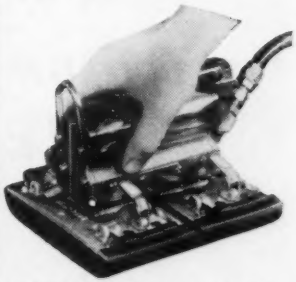


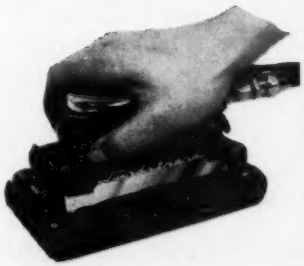
OS-800—lightest weight orbital air sander on the market, at only 3 lb, packs the power and speed needed for production jobs.



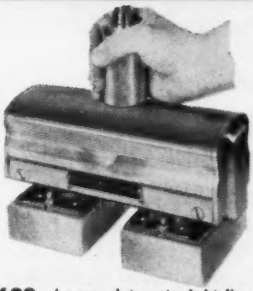
OS-700—single-pad orbital sander, weighing 5 lb, operates over 6000 cycles per minute.



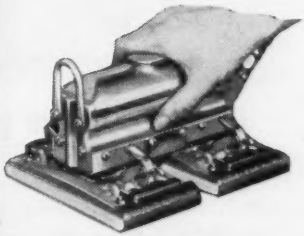
1000—straight-line sander with big abrasive area, operates at 2500 oscillations per minute, palm lever control, 7½ lb.



SP-101—straight-line, single-pad sander, 3000 oscillations per minute, 5 lb.



600—heavy-duty, straight-line unit for sanding, pumice rubbing, or polishing, 1100 oscillations per minute.



4000—straight-line, two-pad sander with longer, slower stroke; 2100 oscillations per minute, 9 lb.

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into the relative crystallographic orientation of the metal and the oxide.

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System for Process Automation. By Harold G. Abbey. Copies available from Abbey Process Automation, Inc., 37-01 48th Ave., Long Island City 1, N. Y. 12 pages. Request APA Bulletin 101.

A detailed description of the Abbey-Matic, a system of process automation applicable to electroplating, anodizing and other immersion processing. This system incorporates five basic principles in transferring plating barrels and racks between and in and out of tanks: 1) independent free-wheeled carriers for racks, barrels and baskets; 2) the use of standard monorail-type trackway for either transferring or conveying the carriers; 3) substitution of a segment of track over tanks where it is desirable for a carrier to pass over or "leap frog" an occupied tank; 4) self-powered lifts or elevating mechanisms at each station; 5) a self-contained unit-control system of position and limit switches with a memory device and carrier signaling system that allows each carrier to initiate system operations and determine its own cycle.

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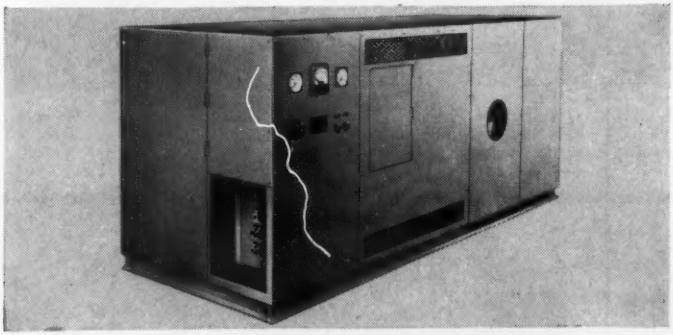

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The Finishing Industry's Exposition

Everyone in the finishing industry is cordially invited to attend the FIFTH INDUSTRIAL FINISHING EXPOSITION being held in Detroit June 16th through 19th.

Assembled here, in the heart of the finishing industry, will be the leading manufacturers of finishing equipment and supplies. Many of these exhibitors will be showing, for the first time, new products and processes that have been developed to meet the industry's requirements for new and better finishes at reduced cost

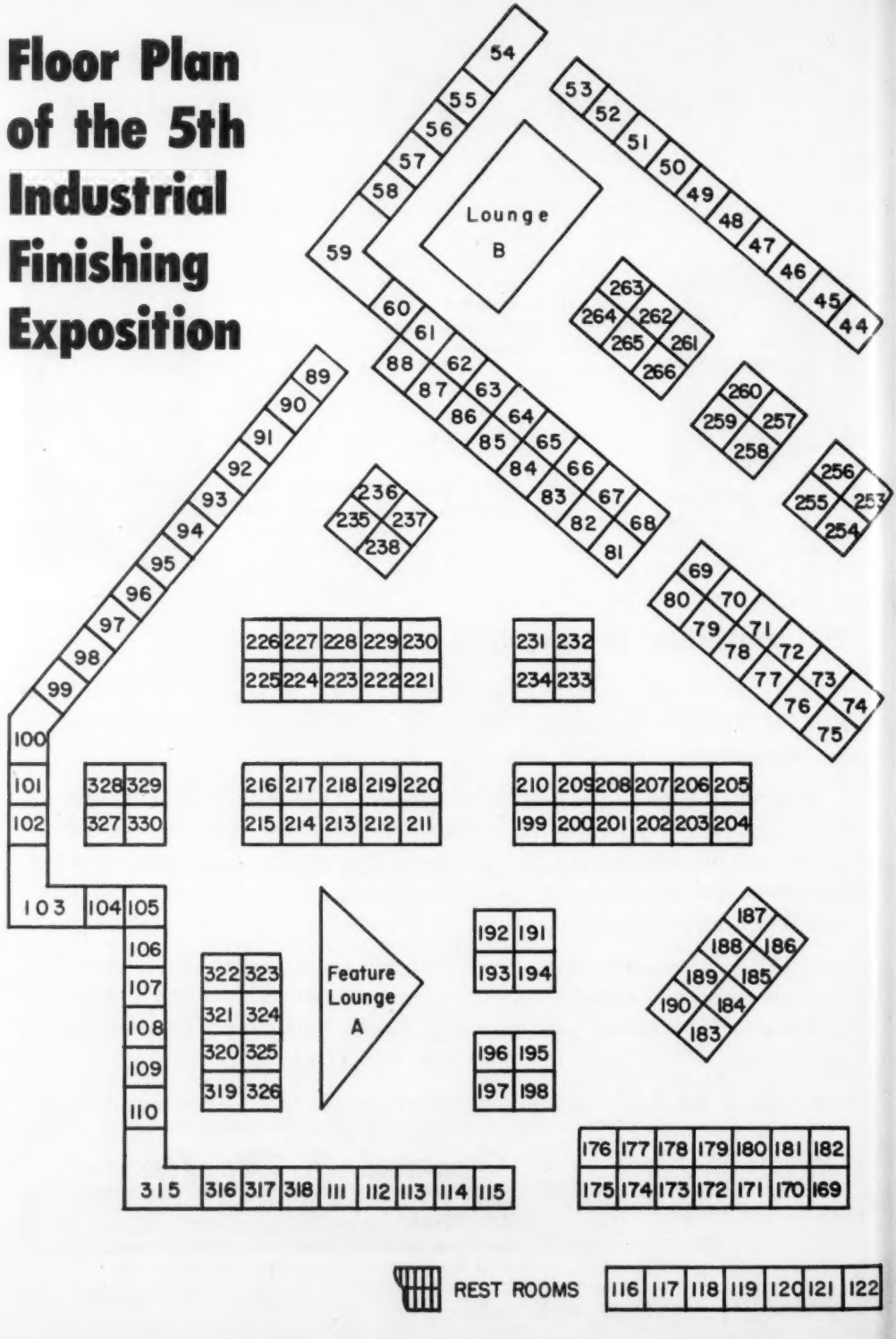
If, out of thousands of products that will be displayed, you should find just one product or secure one idea that will benefit you and your firm's operations, the trip will have been worthwhile. You will not be disappointed if you come.

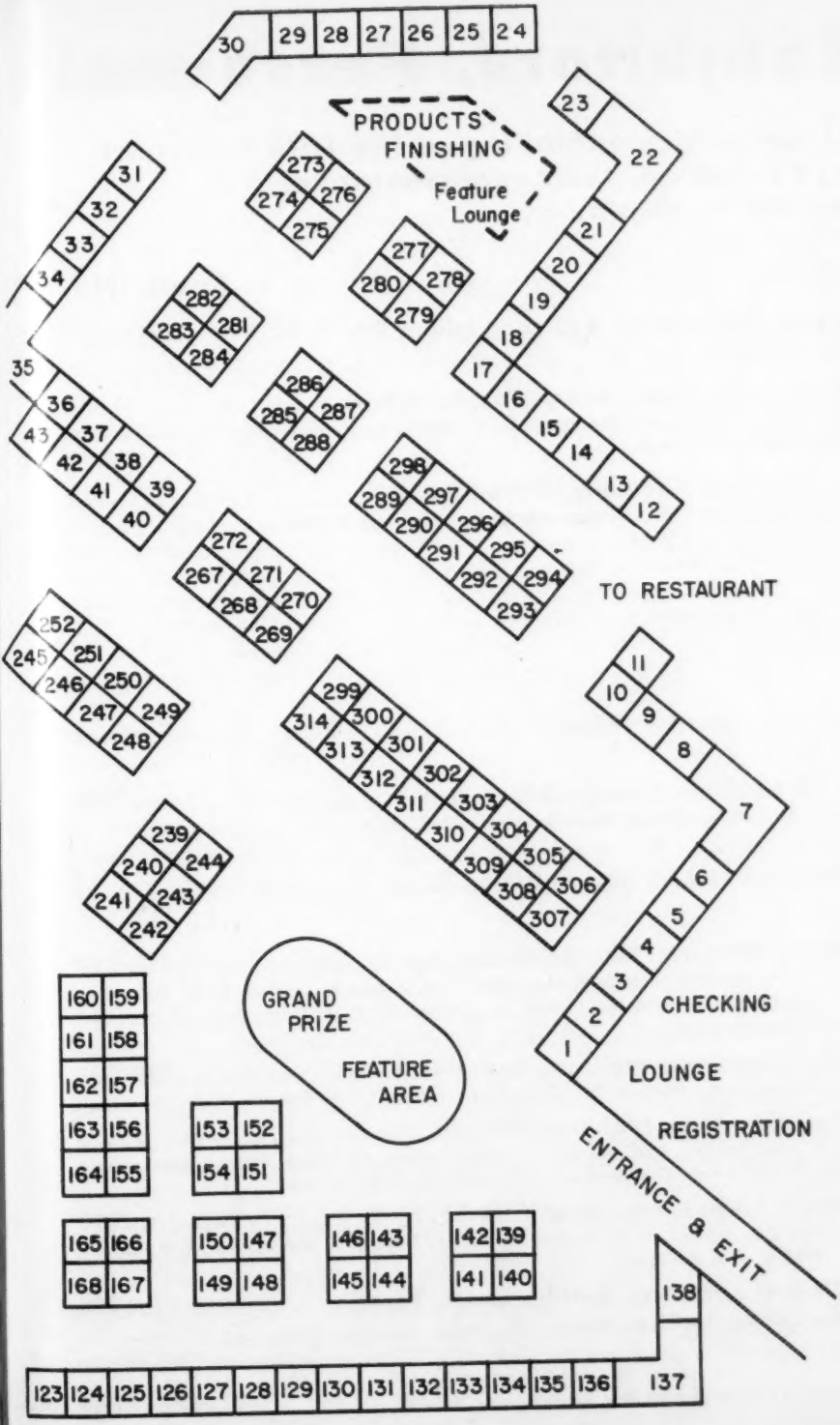
Cordially,

Howard J. McAleer

CHAIRMAN
5TH INDUSTRIAL FINISHING EXPOSITION

Floor Plan of the 5th Industrial Finishing Exposition




30
29
28
27
26
25
24
PRODUCTS
FINISHING
Feature
Lounge
23
22
21
20
19
18
17
16
15
14
13
12
31
32
33
34
35
36
37
38
39
40
41
42
43
273
274
276
275
277
280
278
279
282
283
281
284
286
285
287
288
298
289
297
290
296
291
295
292
294
293
TO RESTAURANT
272
267
271
268
270
269
252
245
251
246
250
247
249
248
299
314
300
313
301
312
302
311
303
310
304
309
305
308
306
307
11
10
9
8
7
6
5
4
3
2
1
239
240
244
241
243
242
GRAND
PRIZE
FEATURE
AREA
CHECKING
LOUNGE
REGISTRATION
ENTRANCE & EXIT
160
159
161
158
162
157
163
156
164
155
153
152
154
151
165
166
168
167
150
147
149
148
146
143
145
144
142
139
141
140
138
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137

Exhibitors, Personnel

A list of companies exhibiting at the Fifth Industrial Finishing Exposition, their representatives and products on display . . .

Exhibitor **Booth No.**

Abbey Process Automation, Inc., Long Island City 1, N. Y. 316-326
Harold G. Abbey.

Abrado Finish Corporation, Grand Rapids 4, Mich. 34
Wallace L. Reed, P. W. Sheppard, L. W. Evans, C. H. Castle, C. A. Vander Sloot, J. F. Rogalske, C. Green.

Acme Manufacturing Company, Detroit 20, Mich. 270-272
Robert Wesler, William Lumsden, Harold Lane, Kenneth Johnson.

Aero Supply Mfg. Co., Corry, Pa. 8
E. J. Kaiser

Alchemize Corporation, Chicago 24, Ill. 276
John F. Jumer, Cecil Fisher, Gene Jablonski, H. C. Karels.

Allied Industrial Products, Inc., Chicago, Ill. 62

Allied Research Products, Inc., Baltimore, Md. 176-179
H. C. Irvin, Jules Horelick, F. M. Mansfield, J. A. Cairns, B. Leonelli, C. W. Ostrander, L. J. Camill, F. Richard, A. L. Poe, H. Tiedeman, D. Borodin, John Pollak, sales representatives.

American Air Filter Company, Inc., Louisville 8, Ky. 129-130
John Liskow, James Munson, Earl Graham, Fred Fischer, Ivan Dyer.

American Buff Company, Highland Park, Ill. 1-6
Ben P. Sax, Stanley Sax, Harry Pink, Marv Radom, Ed Hoyle, Morrie Tychman, Jim Bacha, Rudy Cernick, Glen Beckwith, Murray Paley, Bob Hulland.

American Metal Climax, Inc., New York 36, N. Y. 230
C. B. Allen, J. Mitchell, M. C. Weston, G. C. Van Tilburg, G. Martusevich, E. M. Eriksen, C. A. Nagler, R. E. Joblove.

American Optical Company, Buffalo 15, N. Y. 296
George Tatoian, Edward A. Lorenz.

and Products

Display

Abbey-Matic unitized systems for automatic conveying of parts through plating tanks, other processes. For more data circle 1 on Reader Service Card.

Barrel finishing equipment and supplies, samples of Abrado media and compounds, an Abrado B-312 machine. For more data circle 2 on Reader Service Card.

Acme Model KP flat stock grinding and polishing machine, a pinch-roll type that will handle coil, sheet and bar stock at rates of one to 60 f.p.m. This machine has pneumatic belt tension, positive manual or automatic belt tracking, micrometer grind pressure adjustment, V-belt drive for the abrasive belt to permit belt speed adjustment and infinitely variable control of pinch-roll feed.

Three different models of Acme semi-automatic polishing and buffing machines will be shown. These machines will perform polishing and buffing operations on die castings, stampings and moldings. For data circle 3 on Card.

Grinding wheel balancing device. For data circle 744 on Card.

Two products for chemically polishing aluminum; examples of aluminum alloys chemically polished with Alchemize, and aluminum-silicon castings chemically polished with Luster Burr. For more data circle 4 on Reader Service Card.

Ajax bias buffs. For more data circle 5 on Reader Service Card.

Wagner silicon rectifiers, Wagner Auto-Loaders, Iridite chromate conversion coatings, Irilac clear protective coatings, Isobrite plating brighteners, ARP process chemicals, Flat-Top copper and zinc anodes, Lectrocop flat copper anodes, other chemicals and supplies. For data circle 6 on Reader Service Card.

Type M Cycloil mist and vapor collector, Type N Roto-Clone dust collector. For more data circle 7 on Reader Service Card.

A complete line of buffs and special buff treatments. Buffing and polishing wheels, flexible abrasive wheels. For more data circle 8 on Reader Service Card.

OFHC copper anodes and related items. For more data circle 9 on Reader Service Card.

Recording electro-polarizer for precise polarographic analysis of electroplating solutions. This instrument has the ability to analyze small samples with excellent sensitivity and accuracy. For more data circle 10 on Reader Service Card.

Exhibitor	Booth No.
American Smelting & Refining Co., New York 5, N. Y.	315-318
Automotive Rubber Company, Inc., Detroit 39, Mich. (R. L. Redmond, M. F. Brown, W. J. Beringer, A. C. Johnson, W. M. Richardson, G. Moons, T. G. Meulenberg, P. V. Millard.)	281-284
Baird Machine Company, Stratford 9, Conn.	211
Barker Bros, Inc., Brooklyn 27, N. Y. (Ed Doyle)	14
Beacon Supply Company, Chelsea, Mass. (M. Feinberg, A. Farnham, P. Schell, L. Glissman, M. Starensier, T. Keating, V. Morris, L. Tanner.)	49
Belke Manufacturing Co., Chicago 51, Ill. (Wm. E. Belke, Ralph E. Belke, F. H. Marshall, Ed Stanek, R. W. Kotz, Carl Hansen, Henry O'Reilly.)	147, 150
Bias Buff and Wheel Co., Div. of Riegel Textile Corporation, New York 17, N. Y. (B. R. Boyd, A. L. Shuford, Jr., W. J. Miller, W. K. Reeves.)	112
Bison Corporation, Canton 1, Ohio (N. Knute Morelli, W. K. Henry, Gene Huth, Ralph Coy, Matt Hackman.)	245-246

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Satisfaction

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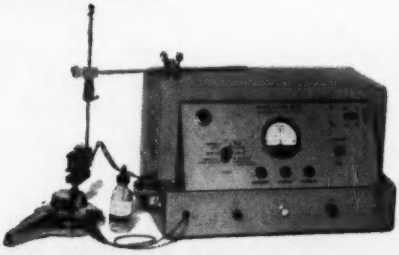

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You can easily and quickly determine the thickness of chromium, silver, tin, cadmium, zinc, brass, copper, nickel, lead, and other plating . . . direct readings . . . 90-95% accurate. Write for further information . . . no cost, no obligation. Ask for a demonstration or a 15-Day FREE Trial!

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For more data circle 345 on Postpaid Card

Display

Anodes, addition agents for cadmium, zinc, and nickel plating, chromate conversion coatings. For more data circle 11 on Reader Service Card.

Air-pollution control equipment, air washers and scrubbers, an acid bugg[illegible], Arco-Wynn straight-through diaphragm valves, linings, Drumserts and plating racks. For more data circle 12 on Reader Service Card.

Barrel finishing equipment. For more data circle 13 on Reader Service Card.

Buffs and polishing wheels. For more data circle 743 on Reader Service Card.

Buffing wheels, buffing compounds, and "Atlantic" greaseless compound. For more data circle 14 on Reader Service Card.

Racks, rectifiers, plating barrels, conveyorized automatic rack plating equipment, automatic barrel plating equipment, corrosion proof equipment for plating. For more data circle 15 on Reader Service Card.

Fire-retardant buffs, bias buffs, gem buffs and gloves for buffing. For more data circle 16 on Reader Service Card.

Buffing and polishing wheels, plating brighteners, "Ventex" bias-type buffs, "Univent" sisal and sisal and cloth buffs. For data circle 17 on Card.

For Dust Free Finishes!

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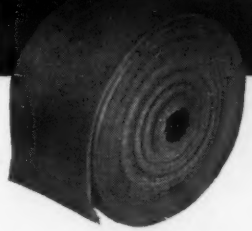

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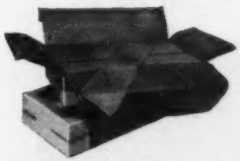

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For more data circle 346 on Postpaid Card

Exhibitor	Booth No.

G. S. Blakeslee Company, Chicago 50, Ill. **181-182**
A. L. Bashe, C. W. Harrs, W. C. Thiess, H. Jones, A. L. Wudi, and L. E. Miller.

Branson Ultrasonic Corp., Stamford, Conn. **31-32**
Henry F. Osterman.

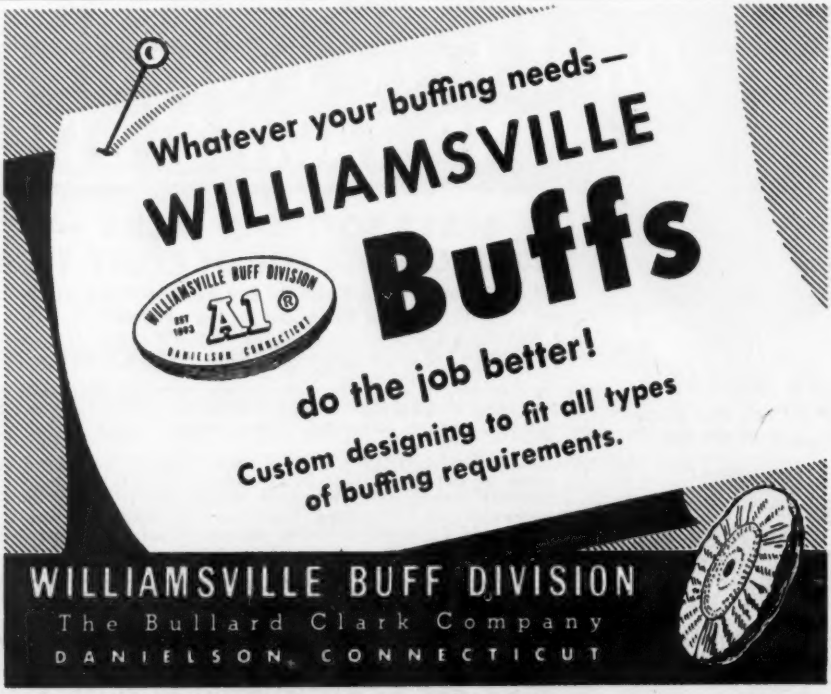
Bruce Products Co., Howell, Mich. **155-156**
C. I. Renwick, S. H. Bruce, E. M. Murley, G. P. Hogg, J. R. Guinter, E. A. Ulbrich, V. P. Lenzen.

Buckingham Products Co., Detroit 27, Mich. **41-42**
R. M. Buckingham, H. J. Patterson, F. X. Woods, H. E. Gray, H. P. Halladay, R. O. Blackford, Joe Davis.

Bush Manufacturing Co., Clawson, Mich. **79-80**
Messrs. Payson, Horsch, Bush, Voth.

The Carborundum Company, Niagara Falls, N. Y. **161-162**
G. R. Rayner, Jr., D. N. Rodger, N. L. Watkins, R. W. Fitch, R. A. Murphy, E. J. Schultz.

Carmac Chemical Co., Pittsburgh 12, Pa. **19**
Kenneth K. Carpenter.



For more data circle 347 on Postpaid Card

Display

An operating degreaser and other cleaning and finishing equipment. For more data circle 18 on Reader Service Card.

Ultrasonic cleaning equipment. For more data circle 19 on Reader Service Card.

Drawing compound, grinding coolants, machining oils, non-rust oils, metal cleaners, buffing compositions (bar & liquid), Velvo greaseless, spray booth coatings, mold release agents. For more data circle 20 on Reader Service Card.

Various types of polishing and buffing compositions. For more data circle 21 on Reader Service Card.

Abrasive belt finishing machinery; Bush yoke sander; table tongue sander; band sander. For more data circle 22 on Reader Service Card.

The latest in barrel finishing techniques will be demonstrated; display includes tumbling barrels, media and compounds. Actual parts will be tumbled to show the different types of products and materials that may be tumbled and also to show how this method is controlled to achieve precision results. For more data circle 23 on Reader Service Card.

Plating supplies. For more data circle 24 on Reader Service Card.

Electro-polishing

Concentrates for

Aluminum and Alloys
Copper and Alloys
Carbon Steels
Stainless Steels
Plus Custom Concentrates for other metals

for fast, low cost

Burr Removal
Size Control
Corrosion Resistance
Micro-Inch Improvement
Electro Machining
Electroplate Adhesion

Electro-Glo

Electro-Glo produces finishes from satin to mirror-bright. We'll be glad to process your sample. Electro-glo offers nation-wide service and delivery in carboys, drums and tank trucks.

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For more data circle 348 on Postpaid Card

Exhibitor	Booth No.

Carpart Corp., Owosso, Mich. 11
C. Kramer.

The Chemical Corporation, Springfield 9, Mass. 50
B. H. Gardner, Hal Mitchell, W. C. Sones, J. H. Gorman, J. Sauntry, L. Arsenault.

Chicago Rubber Co., Inc., Waukegan, Ill. 18
William Cosmos, Edwin A. Kowalski.

Circo Equipment Company, Clark, N. J. 120-121
Melville Morris, Severn Carlson, James Mastrian, Robert Monahan, Ray Ledford, W. H. Webb, Ray McDaniel.

Clementina, Ltd., San Francisco 24, Calif. 117
Robert Strickland.

Cleveland Process Corporation, Cleveland 3, Ohio 206-209
Daniel Sutton, Fred L. Lefebvre, Ed Layton, Mark McGinnis, Bob Fred, Joe Samson, Harry Walter.

Clifford-Rockwell Company, Detroit 35, Mich. 212
Dean Rockwell, Norman Hill, Clinton Brisendine.

F. L. and J. C. Codman Company, Rockland, Mass. 20

Composition Materials Company, Inc., New York, N. Y. 213
Dean Rockwell, Norman Hill, Clinton Brisendine.

Conversion Chemical Corporation, Rockville, Conn. 128
Kenneth Bellinger, Gene Chapdelaine.

Corning Glass Works, Corning, N. Y. 74

Cowles Chemical Company, Cleveland 3, Ohio 37
George Woleben, Clay Sayers, Richard Connors, Elmer Lord, William Robinson, William Swift, Carl Clabaugh.

Davies Supply and Manufacturing Co., St. Louis 16, Mo. 249
L. A. Davies, E. F. Conroy, Jr., A. S. Burnett, A. P. Wrisberg.

Dean Thermo-Panel Coil Division,
Dean Products, Inc., Brookyln 38, N. Y. 158-161

Deering, Milliken and Company, Inc., New York 18, N. Y. 12-13
Earle R. Loomer, Jr., Winston Garth, Harry C. Stahel.

Display

Corrosion resistant hoods, tank liners, exhaust systems and fume collectors. For more data circle 25 on Reader Service Card.

Luster-on color process of chromate finishing; the Winscott in-tank filter; Kem-Bar Fiberglass tanks; and the Luster-on Silva-Brite silver plating process. For more data circle 26 on Reader Service Card.

Rubber contact wheels and rolls for use with coated abrasive belts. For more data circle 136 on Reader Service Card.

Agitation cleaner, vapor degreaser, ultrasonic cleaner, steam cleaner. For more data circle 27 on Reader Service Card.

Clemco Wet Hone, Jr., made for wet honing of critical-tolerance parts; the Clemco dry blast cabinet with dust collector; the Clemco Educt-O-Matic portable blast cleaner; and the Norbide Venturi Nozzle, a long-life, hard-hitting nozzle for blast cleaning equipment. For more data circle 28 on Reader Service Card.

Fused quartz ovens and electric immersion-heaters. For more data circle 29 on Reader Service Card.

Hermes coated abrasives—German-made belts, sheets, rolls, discs. For more data circle 30 on Reader Service Card.

Buffing and polishing wheels. For more data circle 31 on Reader Service Card.

All types of organic abrasives—crushed walnut shells, corncobs, wood flour, leather fibres, and so on. These materials are useful in blasting, tumbling, burnishing and drying. For more data circle 32 on Reader Service Card.

Line of chromate coatings for non-ferrous metals; compatible brighteners for zinc and cadmium plating; and specialties for drying, corrosion prevention and buffing compound removal. For more data circle 33 on Reader Service Card.

Pyrex heat exchangers; industrial radiant heating panels. For more data circle 34 on Reader Service Card.

A full line of soak, spray and electrocleaners. For more data circle 35 on Reader Service Card.

Plating and anodizing racks, plastisol coated parts, rod insulators and specialties. For more data circle 36 on Reader Service Card.

Demonstrations will show the advantages of using Dean Thermo-Panel Coils for heating tanks, vessels, vats, reactors, mixers, drums, valves and so on. For more data circle 37 on Reader Service Card.

Milliken buff fabrics plus a demonstration of the manufacture of buff cloth, featuring a loom weaving buff cloth. For data circle 38 on Reader Service Card.

To page 82→

NEW WAY TO UPGRADE YOUR PRODUCTS: VINYL COATINGS

Pleasant-to-touch, glare-reducing dashboard finished with a vinyl dispersion that *creates its own patterns.*

For "leather-like" coverings for metal desk, file cabinets, and office appointments . . .

For stamped, light-metal luggage; instrument cases; office-machine housings . . .

Thin, leathery, "textured" finishes for metal

Something new in metal finishing: leather-like, warm-to-the-touch finishes that heat-cure to a textured finish. It's actually "texture in paint!" The base material: abrasion-resistant vinyl (of hard-wearing floor-tile fame) formulated as a dispersion for spray or dip coating. A single coat provides the complete finish. You can specify any shade or tone of color.

Short heat-cure at moderate temperatures adheres the vinyl permanently to the metal. These vinyl-dispersion finishes are so flexible, adhere so tenaciously, that pre-finished sheet metal can be stamped to shape without need for final finishing.

Write for sources of vinyl in liquid form for coating metal, glass, or wood. Get a head start on investigating the profitable ways to use these new, textured, leathery finishes. Write today!

Monsanto manufactures a wide variety of plasticizers and Opalon® resins for formulators of these high-quality vinyl dispersions.

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MONSANTO CHEMICAL COMPANY
Dept. SP-2, St. Louis 66, Missouri

For more data circle 349 on Postpaid Card

Exhibitor	Booth No.

Detrex Chemical Industries, Inc., Detroit 32, Mich. 63-64

Detroit Industrial Process Company, Detroit 13, Mich. 21
R. A. Wetzel.

The Diversey Corporation, Chicago 13, Ill. 43-44
M. T. Bennett, J. H. Palmer, R. E. Pettit, W. H. Murphy, C. G. Smith, W. Laletin, L. C. Hesoun, J. W. Shrank, C. R. Barkhurst, W. B. Drake.

Dow Chemical Company, Midland, Mich. 223-224
S. Blackmore, W. Reid, E. Chamberlin, J. Kloustin.

Du-Lite Chemical Corporation, Middletown, Conn. 40
Kenneth J. Dooley, Stanley H. Coe, George E. Gamble.

E. I. du Pont de Nemours and Company (Inc.), Electrochemicals Dept., Wilmington 98, Del. 148-149
H. L. Benner, R. S. Creadick, P. R. Hendrixson, D. W. Hill, J. B. Hitchcock, D. A. Swalheim, J. J. Hargarten, P. R. Lindsay, R. C. Baxter, F. J. Petkovsek.

Du-Tone Chemical Company, Waukegan, Ill. 124
John Hunt, James August.

Eaton Chemical & Dyestuff Company, Detroit 7, Mich. 45
R. D. Cumming, W. W. Kaufman, R. W. Plank, M. W. Lovett.

Electro-Glo Company, Chicago 24, Ill. 273
John F. Jumer, Cecil Fisher, Gene Jablonski, H. C. Karels.

Electronic Rectifiers, Incorporated, Indianapolis 3, Ind. 99
Paul B. Freeman.

Enthone, Incorporated, New Haven 11, Conn. 106-110
Dr. Walter R. Meyer, C. C. Helmle, Joseph Rhoades, W. K. Murray, Dr. E. B. Saubestre, E. B. Washburn, J. J. Martin, A. Harry Sanders, J. R. Eisele, J. H. Shockcor, F. A. Schneiders, L. V. Gagnon, H. M. Goldman.

Erie Engine & Manufacturing Co., Erie, Pa. 171-172
J. A. Roos, Lloyd Adam, J. H. Bailey, J. W. Legler, A. C. Albert.

Federated Metals Division, American Smelting & Refining Co., New York 5, N. Y. 111
S. Goble, G. Spotts, W. K. Murray, C. C. Helmle, A. M. Callis, J. Vogelos, T. Heemstra.

Finish Engineering Co., Inc., Erie, Pa. 228-229
R. B. Way, Carl Hersey, Cliff Scantlebury, Howard Miskall, George Gardner.

Formax Manufacturing Corp., Detroit 7, Mich. 231-234
Howard J. McAleer, J. J. McAleer, Edward W. McAleer, Edward D. McAleer, Richard McAleer, Stuart W. Rodger, C. T. Rodger, James Follas, Loyal Malone, Bob Blake, Nathan McCune, Dexter Watson, Bernard G. Jeske, Jim Belanger.

G. S. Equipment Co., G. S. Plastics Co., Cleveland 11, Ohio 294-295
T. R. Gill, W. A. Munkacsy, K. Neffinger, A. Singleton.

Display

Cleaning and conversion coating compounds, solvents, degreasers and ultrasonic cleaning equipment. For more data circle 39 on Reader Service Card.

Titanium for anodizing racks; titanium bar and strip; titanium nuts and bolts; standard racks and clips. For more data circle 746 on Reader Service Card.

Anodizing pretreatment compounds; a new stainless steel bright dip process; and Aluminux, an aluminum etching compound. For more data circle 40 on Reader Service Card.

Saran-lined pipe, fittings, valves. For more data circle 41 on Reader Service Card.

Black oxide finishes for steel, stainless steel, brass, copper; phosphate coatings. For more data circle 42 on Reader Service Card.

A new leveled copper plating process; new sodium cyanides; new copper plating salts; and recent developments in anhydrous phosphatizing. For more data circle 43 on Reader Service Card.

Electroplating processes and supplies. For more data circle 137 on Card.

Chemicals, anodes, anodizing dyes, plating chemicals. For more data circle 44 on Reader Service Card.

Examples of electropolished finishes on different kinds of metals, in various shapes and sizes, showing both decorative and industrial uses on aluminum alloys, copper alloys, steels and stainless steels. For data circle 45 on Card.

Magnesium copper sulfide and silicon rectifier power supplies and replacement rectifiers. For more data circle 46 on Reader Service Card.

Enstrip metal strippers; Entek 45; Ebonol blackening compounds; Alka-Deox 114; Enthol 230; Flowbrite No. 1; Alumon; Etchalume 14; paint and enamel strippers. For more data circle 47 on Reader Service Card.

A waterless vapor-type Erie degreaser in operation. For more data circle 48 on Reader Service Card.

A new bright nickel process, Levelmax, will be demonstrated; anodes and plating chemicals will be displayed. For more data circle 49 on Reader Service Card.

Spray painting tools and machinery for detail and multicolor decoration. For more data circle 50 on Reader Service Card.

New "No-Streak" buffing wheels with flap-type construction that contains more cotton sheeting per square inch of wheel face; Zippo buffing wheels, liquid and bar-type buffing compounds; and compound-spraying equipment. For more data circle 51 on Reader Service Card.

Plating barrels, corrosion test cabinets, corrosion resistant protective coatings and liners. For more data circle 52 on Reader Service Card.

Exhibitor **Booth No.**

General American Transportation Corporation, Kanigen Div., Chicago 90, Ill. 252
Wm. Crehan, M. Taylor, R. Phelan.

Globe Div., Casalbi Company, Jackson, Mich. 17
Wm. B. Sparks, Carter W. Sparks, Bud Cowles.

Glo-Quartz Electric Heater Company, Inc., Willoughby, Ohio . .167-168
G. T. Strokes, E. G. Hayden, Dave Zulewski, A. M. Dauber, P. Baker.

Grav-I-Flo Corporation, Sturgis, Mich. 143-146
R. L. Davidson, L. R. Davidson, Earle R. Bogema, Eugene Jarvis, Maurice Condon, Charles Sprowl.

Great Lakes Carbon Corp., Nero-Products Department, Chicago 1, Ill. 113
H. L. Vallandigham, W. P. Gramm, F. L. Haas, Carl Wurdock.

Hammond Machinery Builders, Incorporated, Kalamazoo, Mich. 261-266
D. A. Kilb, S. H. Miller, R. M. Bell, William Gleason.

Hanson-Van Winkle-Munning Company, Matawan, N. J. 299-314
James A. Badaluco, Charles E. Bagwell, Eugene C. Bosl, Perry C. Burnham, Myron B. Diggin, Merrill Feldman, Louis M. Hague, Edmund H. Hanlon, Willard J. Harper, G. M. Herring, J. D. Kershaw, H. B. Koehler, M. J. Moll, D. H. Morris, R. M. Norton, D. M. Roney, C. E. A. Solla, A. D. Squitero, Warren S. Wilkinson.

Hardwood Line Manufacturing Co., Chicago 47, Ill. 83
Angelo Lazaro, Anton Lazaro.

Harshaw Chemical Company, Cleveland 6, Ohio 267-269
Electroplating Division representatives.

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Plants: Main • New Jersey • Canada

For more data circle 350 on Postpaid Card

Display

Valves, filters, electronic components, pump parts—fabricated of iron, steel, aluminum and bronze—and chemically nickel coated by the Kanigen Process. For more data circle 53 on Reader Service Card.

Globe barrel finishing equipment; deburring media and compounds; typical samples that have been barrel finished with the company's products. For more data circle 54 on Reader Service Card.

Electric immersion heaters, radiant oven heaters, heater controls. For more data circle 55 on Reader Service Card.

Spin-Finish mechanical finishing machine in operation, Model BT32-30-2 tumbling machine and two-deck mechanical parts and chips separator. For more data circle 56 on Reader Service Card.

Nerofil, a filter aid that is compatible with all plating solutions. For more data circle 91 on Reader Service Card.

Model FF-12-2 Flat Finisher, 14-foot horizontal-return straight-line polishing machine, 46-inch rotary automatic with one polishing and one buffing head, VRRO Variable-Speed Double-Spindle polishing and buffing lathe. For more data circle 57 on Reader Service Card.

A totally new concept in full automatic processing conveyors: full-size conveyor will be operating to demonstrate features. Machine will be equipped with automatic rack loader. Also on display: rectifiers and controls developed by H-VW-M; Duralume, a sulfur-free semi-bright deposit with high ductility and leveling characteristics; Copper-Lume, a high-speed bright cyanide copper plate; Zincalume, a bright, still-tank cyanide zinc process; several new processes for finishing aluminum; a motorized barrel plating unit and a centrifugal dryer; buffing compounds, buffs, polishing wheels, brushes, other miscellaneous products. For more data circle 58 on Reader Service Card.

Lazo lucite plating barrels. For more data circle 59 on Reader Service Card.

Examples of articles plated with Harshaw's Perflow-Perglow nickel plating process, which produces a duplex nickel deposit that has excellent resistance to corrosion. Company's other plating processes will also be shown. For more data circle 60 on Reader Service Card.

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Exhibitor — Booth No.

Haviland Products Company, Grand Rapids, Mich. 289
J. B. Haviland, J. M. Haviland, O. D. Hoxie, C. H. Roach, Gordon Lee, Hugh Brown, Walter Builtinan, George Ambrose, Ed Haan, Jim Wolfe, Don Bazzett, Ralph Brouwer.

Heatbath Corporation, Springfield 1, Mass. 291-293
E. A. Walen, Jr., James B. Wheeler, Robert Wild, Malcolm A. Focht, Peter Petroff, John C. Drinkwater, Donald R. Barber, Bernard C. Lindstrom, Joseph Azzolino, William F. Houlihan.

Heil Process Equipment Corporation, Cleveland 11, Ohio 285, 288
C. E. Heil, E. W. Vereeke, F. W. Arndt, R. E. Scheel, R. F. Protiva, R. M. Cutter, K. C. Norton, E. G. Gwyer.

Hitchcock Publications, Wheaton, Ill. 92-93
V. C. Hogren.

R. O. Hull and Company, Inc., Rocky River 16, Ohio 81-82
R. O. Hull, Jr., Curtis Miller, Joseph L. Jackson, Joseph Zehnder, Duane Black, George Bartle, Stanley Beauregard, Ted Betz, Roy Critchfield, Herb Geduld, Bill Lang, Joe Manzella, Bob Parker, John Weyls.

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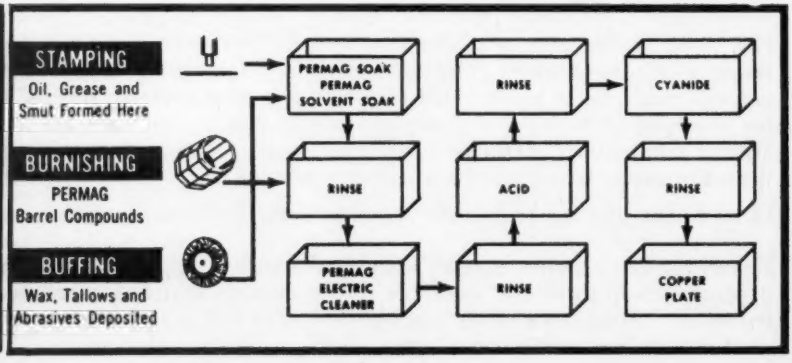

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In Canada: Canadian PERMAG Products, Ltd., Montreal

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Display

Metal finishing surfactants. For more data circle 61 on Reader Service Card.

Nickel Pentrate; black oxides for steel, stainless steel, cast iron, copper, brass; Duracoat chromate finishes for zinc, cadmium, copper, brass and aluminum; compounds for finishing aluminum, including etchants, deoxidizers, deburring compounds, bright dips, and chromates. For more data circle 62 on Reader Service Card.

Fume-control equipment, lead anodes, graphite tank heaters, lined tanks. For more data circle 63 on Reader Service Card.

Grinding and Finishing Magazine.

Rohco plating and anodizing test equipment with various types of Hull Cells and related equipment for controlling plating baths; an Anodicator for testing thickness of anodic coatings; Rohco addition agents and special-purpose chemical products for treating cadmium, copper and zinc; a newly designed portable heat exchanger for heating or cooling acid and alkaline solutions. For more data circle 64 on Reader Service Card.

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A Dresser Silicon Rectifier is the perfect answer for all of your power conversion needs. Low maintenance combined with easy installation, peak efficiency and dependable operation helps keep your finishing costs at a minimum.

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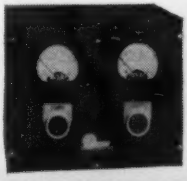


Dresser Silicon Rectifier with remote control panel.

DRESSER ELECTRIC CO. 2705 WIGHT STREET DETROIT 7, MICHIGAN

For more data circle 353 on Postpaid Card

Exhibitor	Booth No.

Industrial Filter & Pump Manufacturing Co., Chicago 50, Ill. **139, 140, 142**
James F. Zievers, Chick Weege, Ken Johnson, Bill Wallin, Rocky Gray, Ted Sward.

Industrial Instruments, Incorporated, Cedar Grove, N. J. **216**
Lee Anger, Jim Vetowich, John H. Williamson.

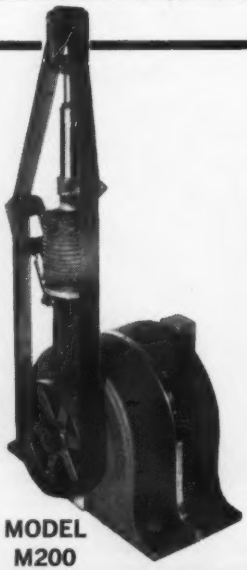
Industrial Plastic Fabricators, Incorporated, Norwood, Mass. .. **135-136**
Paul R. Chamberlain, James P. O'Connor, Jr., Harry A. Reed, E. M. Vorel.

International Nickel Company, Inc., New York 5, N. Y. **189-190**
W. H. Prine, C. H. Sample, C. B. Sanborn, W. W. Sellers.

Ionic Electrostatic Corporation, Garfield, N. J. **277-280**
John Sedlacsik, Jr., Cornelius Breen, Louis Buono, Jr., Maurice Zapeikov, Theodore James.

Kocour Company, Chicago 32, Ill. **67-68**
Cyril Kocour, Orville Kocour, Edward Jablonski, Everett Hodges, Walter Warner.

Kolene Corporation, Detroit 23, Mich. **114-115**
J. H. Shoemaker, R. H. Shoemaker, W. P. Ziegler, David F. Low, D. W. Sisk.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Bush **Manufacturing Co.** CLAWSON MICHIGAN

For more data circle 354 on Postpaid Card

Display

Filters, pumps, ion-exchange, waste treatment, heat exchange and water softening equipment. For more data circle 66 on Reader Service Card.

Instruments for measurement and control of rinse tank waters. For more data circle 65 on Reader Service Card.

PVC and Fiberglass centrifugal fans; PVC air washers; a PVC utility blower; a model exhaust system; fabricated and machined parts of PVC and polyethylene. For more data circle 67 on Reader Service Card.

Nickel plated products. For more data circle 68 on Reader Service Card.

Model M-50 Multi-Color centrifugal-disc-type electrostatic spray equipment; Model 12 Ionic centrifugal-cone-type electrostatic atomizers; new electrostatic hand gun, Model 10; various other electrostatic spray guns, nozzles, power supplies and related equipment. For more data circle 69 on Reader Service Card.

Demonstration of the Kocour Electronic thickness tester. Kocour test sets will be shown along with lab rectifiers, buffing compounds and other finishing supplies. For more data circle 70 on Reader Service Card.

Kolene No. 5 paint stripping process; Kol-Strip paint stripping process; Kolene deNamel porcelain enamel stripper; Kolene No. 1 and Kolene No. 4 sand, scale and graphite removal processes. For more data circle 71 on Reader Service Card.

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Exhibitor	Booth No.

Kraft Chemical Company, Inc., Chicago 8, Ill. 9
G. G. Kraft.

Lasalco, Inc., St. Louis 4, Mo. 327, 330
B. G. Daw, A. G. Bignall, F. A. Menniges, R. E. Delgman.

The Lea Manufacturing Co., Waterbury 20, Conn. 204-205
Earle W. Couch, Richard P. Crane, Dee F. Mosher, Fred Nobel, Kergan Wells, John Guss, Robert Allan, S. Lewis Doughty, Francis X. Bergin, William G. Millman, Leo J. Bakinow, Dr. H. L. Kellner.

Lea-Ronal, Incorporated, Jamaica 35, N. Y. 205
Dr. H. L. Kellner, Barnet D. Ostrow.

A. H. Losey Company, Jackson, Mich. 78
Arthur H. Losey, Eugene Crisenbery.

Lyon, Incorporated, Detroit 28, Mich. 75
Robert Barnes, George A. Lyon, Jr.

MacDermid, Incorporated, Waterbury 20, Conn. 185-188
Harold Leever, Stanley S. Krentel, Arthur R. McNeil, A. J. Dankevich, W. J. Dyber, Arnold H. Kurth, A. A. Ferguson, C. L. Capobianco, J. T. Sullivan, Richard L. Nyquist, L. Nelson Davies, E. F. Stack, Gilbert J. Osterfeld, Fenton Liffick, Frank Hartwig, Raymond G. Dargis, John Leever, A. J. Butterer, Harold Lazaar, Edward Cox, C. F. Thornton, W. D. Gordon, Frederick Johnson, Clyde E. Lowe, Claude Weekly, James Warren, Dr. A. Lloyd Taylor, Dr. Erich Laue, William P. Innes, J. Douglas Patrick.

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Display

Chemical cyanides, raw materials. For more data circle 72 on Reader Service Card.

Select-O-Matic multiple-process plater. For more data circle 73 on Reader Service Card.

Technical information on products, processes and techniques for buffing, polishing and plating, with emphasis on satin finishing, liquid spray buffing. For more data circle 74 on Reader Service Card.

Bright electroplating processes for gold, silver, copper, brass, cadmium, zinc, nickel. For more data circle 75 on Reader Service Card.

Automatic polishing and buffing machinery. For more data circle 76 on Reader Service Card.

Buffing wheels. For more data circle 77 on Reader Service Card.

Metal cleaners, copper plating additives, chromium strippers, electropolishing products, chromate conversion coatings, dry acid salts. For more data circle 78 on Reader Service Card.

To page 94→

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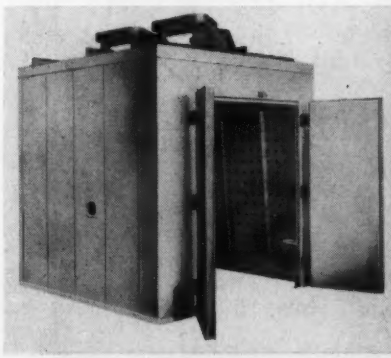

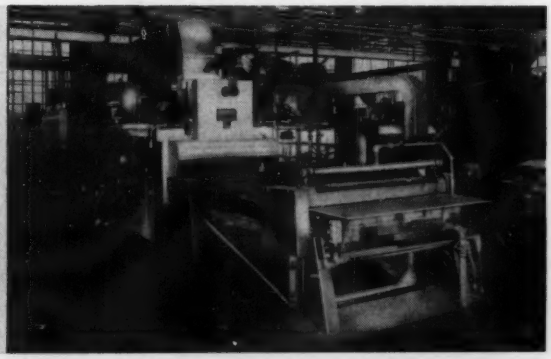

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3	Alkaline soak	Kelite Supersolv	5 oz./gal.	165° F.	2 min.
4	Spray clean	Kelite MD-1-S	¼ oz./gal.	140° F.	1 min.
5	Anodic alkali clean **	Kelite No. 41	5 oz./gal.	160° F.	2 min.
6	Rinse	Water	.....	Ambient	1 min.
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8 & 9	Rinse	Water	.....	Ambient	1 min.

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For more data circle 359 on Postpaid Card

Exhibitor **Booth No.**

Manpro Corporation, Detroit 20, Mich. **131-132**
R. C. White, R. C. Driscoll, Wm. Carnegie, John Snider, Al Graff.

McAleer Manufacturing Corp., Detroit 17, Mich. **254-255**
Edward Van Zandt, C. H. McAleer, H. E. Anderson, C. E. Dodd.

McGean Chemical Company, Cleveland 15, Ohio **169-170**
R. L. McGean, P. M. Savage, D. L. Whitney, W. L. Pinner, W. P. Devan, S. B. Cowdery, J. J. Becker, B. G. Allen, R. D. Savage.

Merit Products, Incorporated, Los Angeles 16, Calif. **173**
Bill Gillett, I. B. McGregor.

Metal & Thermit Corporation, Rahway, N. J. **199-203**
H. D. McLeese, H. Mahlstedt, H. Buchanan, E. M. Tinnon, V. Guernsey, R. Dudley, J. Dunn, E. Rehme, F. Haas, I. Weiss, W. Brodin, F. Connor, L. Quirk, K. Ford, W. Carter, R. Collins, R. Dow, E. Riotte, F. Fulforth, Dr. J. Stareck, Dr. F. A. Lowenheim, Dr. E. Seyb, Dr. G. Dubpernell, F. Passal.

Metal Finishing Magazine, Westwood, N. J. ..... **Lounge B**
Palmer Langdon, John E. Trumbour, Nathaniel Hall, Joan T. Wiarda.

Michigan Buff Company, Inc., Detroit 12, Mich. **79-80**
A. W. Payson, O. J. Horsch, A. J. Becker, Arthur Yeates.

Michigan Chrome & Chemical Company, Detroit 13, Mich. **16**
Allen Russell, Bob Richards, Al Neeme, Don Patterson, Earl Kunish, Ted Root, Chuck Fossati.

Minnesota Mining & Manufacturing Co., St. Paul 6, Minn. **38-39**

Murray-Way Corporation, Birmingham, Mich. **97-99**
E. E. Murray, R. Zech, L. Billig, G. C. Whiteside, J. Brown.

NRC Equipment Corporation, Newton 61, Mass. **57-58**
Gilbert King, Jr., Harry D. Stone, Robert J. Amis, John Lee, Francis X. Maher, Howard M. Farrow, Byron Ellis.

Geo. L. Nankervis Company, Detroit 27, Mich. **51**
C. Civan, W. Katke, K. Brocklehurst, A. Gaier, K. Battjes.

National Association of Metal Finishers, Cedar Grove, N. J. **138**
P. Peter Kovatis.

National Carbon Company, Div. of Union Carbide Corp., New York 17, N. Y. **84**
J. M. Brown, J. R. Brauning, J. J. Behen, J. Knott, F. K. Lutz.

New Holland Machine Company, New Holland, Pa. **125**
J. Frank Powl, John H. Ressler.

Newark Brush Company, Kenilworth, N. J. **213**
Dean Rockwell, Norman Hill, Clinton Brisendine.

Display

Manpro Vibra degreaser and Vibra metal dryers. For more data circle 79 on Reader Service Card.

Buffing compounds, buffs and related products. For more data circle 80 on Reader Service Card.

Anodes and chemicals for electroplating; new McGean Besplate nickel anodes. For more data circle 81 on Reader Service Card.

Flap-type coated abrasive polishing heads, mounted on buffing lathes. These flap-type wheels make it possible to replace the abrasive without removing the unit from the spindle. For more data circle 82 on Reader Service Card.

Increased corrosion resistance possible through use of thicker chromium plates will be featured in the exhibit. Textured vinyl dispersion finishes, new cyanide copper plate and colored dip finishes will also be displayed. Parts plated by new Duplex Chromium Process. For more data circle 83 on Reader Service Card.

Metal Finishing Magazine, history of electroplating, dating from 1903.

Buffs and polishing wheels. For more data circle 84 on Reader Service Card.

Rack coatings, stop-off materials, corrosion-resistant plastisols, powdered resin coatings. For more data circle 85 on Reader Service Card.

"Honite" brand barrel finishing media and compounds. For more data circle 86 on Reader Service Card.

Automatic polishing and buffing equipment. For more data circle 87 on Reader Service Card.

Vacuum metallizing equipment, samples of vacuum metallized parts coated with a thick aluminum film. Planetary vacuum coating jig. For more data circle 88 on Reader Service Card.

A new packaged chlorinator system for cyanide waste removal set up for full operation, with pumps, chlorine gas receptacles and caustic proportioning feeder; a complete line of electric and air-operated automatic compound applicators. For more data circle 89 on Reader Service Card.

Plating Management Magazine.

"Karbate" impervious graphite equipment, including heat exchangers, pumps, pipes and fittings; "National" metal-graphite and Electrographitic brushes for plating power supplies. For more data circle 90 on Reader Service Card.

New Holland Kreider centrifugal dryers. For more data circle 92 on Card.

Wire and tampico power brushes and all types of industrial brushes. For more data circle 93 on Reader Service Card.

To page 98→

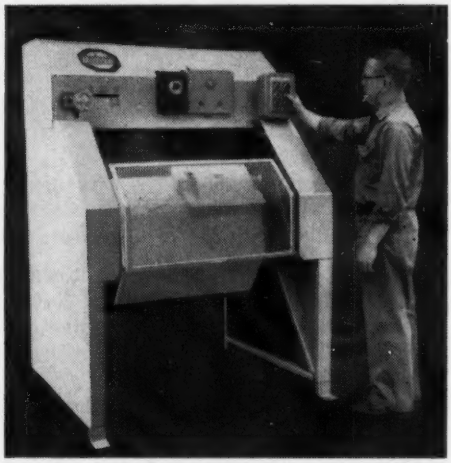
How Can You Insure Barrel Finishing Success?

Esbec Offers Complete Pre-testing

You *can* insure barrel finishing success on many parts – with complete pre-testing. Here's how Esbec is insuring barrel finishing success for its customers.

First, your part is tested extensively in our laboratories to see if it *can* be barrel finished successfully. Then, our engineers find the right combination of equipment, compounds, media and other factors that will do the job *best*. Esbec also maintains its own barrel finishing job shop. These facilities guarantee that Esbec recommendations will work *on a production basis*. Esbec engineers then pass this information along to you. They'll help you set up your own barrel finishing department. They'll provide a free training course for your own production personnel – and will continue to provide technical assistance on new problems. In addition, Esbec can supply you with complete barrel finishing equipment and supplies – from one source.

Esbec equipment and supplies are the most modern available – products of our extensive experience and research facilities. For example, Esbec offers the *only color coded barrel finishing compounds on the market* – saving you time and preventing mistakes. We also offer a wide assortment of economical media for all metals, all shapes and all finishing operations. Contact Esbec today and place your barrel finishing problems in our hands.



Esbec HD Model with push-button controls.

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For more data circle 360 on Postpaid Card

Oakite 50th Anniversary Booklet. Removing moon dust from returning space transports soon may be a project for consideration by industrial cleaning laboratories, according to the latest issue of *Oakite News Service*, published on the 50th anniversary of Oakite Products, Inc.

The book traces the evolution of cleaning. Describing its parallel with the rise of human civilization, the story starts with Neanderthal man and his protein-rich protozoic diet, describes the ingenious Roman method of trampling clothes clean, gives the Greek physician Galen's recipe for soap, sketches the soap-making chores of the frugal 19th century American housewife.

Copies of 50th Anniversary Issue of *Oakite News Service* are available from Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

For more data on advertisement on opposite page, circle 361 on Postpaid Card

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Exhibitor	Booth No.

Nordson Corporation, Amherst, Ohio **89**
Jack Dunn, Ronald Meyer, R. T. Schafer.

Oakite Products, Incorporated, New York 6, N. Y. **72-73**
M. F. Maher, T. R. Smith, D. X. Clarin, R. J. Crane, D. W. O'Leary, J. G. Hyde, J. E. Sauve, N. Carter, T. D. Ellsworth, D. W. McComb, V. Heinrich, E. S. Bradley.

Pennsalt Chemicals Corporation, Philadelphia 2, Pa. **7**
C. R. Sorber, W. R. Cleary, B. T. Scott, E. W. Wilson, R. M. Burford, J. M. Davidson, H. F. McIntyre, S. J. Barlett, Gene Edwards, F. C. Leensvaart, P. C. Rech, W. D. Wilson, W. T. West.

Perma-Line Rubber Products Corporation, Chicago 48, Ill. **15**
John W. Blaydes, Larry Dillon, Jack B. Major.

Phillips Manufacturing Company, Chicago 45, Ill. **47-48**
L. R. Anderson, Harry Burnham, John Ott, Chas. Sueme, Harold Tobin, Ephriam Werner.

Platers Research Corporation, New York 3, N. Y. **247**
A. T. Marinaro, Lou Packman, Sidney Gewertz.

Plating Magazine, Newark, N. J. ..... **Lounge A**
John P. Nichols, Rodney Leeds, Thomas W. Lowe, Ralph F. Scholbe.

Pressure Blast Manufacturing Co., Inc., Manchester, Conn. **53**
Savin Zavarella.

Productive Equipment Corporation, Chicago 12, Ill. **85-86**
L. H. Lehman, G. W. Dwyer, L. M. Haluch.

Products Finishing Magazine, Cincinnati 2, Ohio ..... **Lounge C**
Richard S. Kline, Granville M. Fillmore, John M. Krings, Ezra A. Blount, Duncan W. Barton, George E. Hay, Gerard H. Poll, Jr., Jeryl L. Marlatt, Kenneth M. Gettelman, Gene J. Schwarber.

Promat Div., Poor & Company, Waukegan, Ill. **160**
Louis R. Gallas.

Rampe Manufacturing Co., Cleveland 10, Ohio **69**
John F. Rampe, Cranston Jones, Jim May.

Ransburg Electro-Coating Corporation, Indianapolis 23, Ind. **54**
Robert H. Stone, Reno Offringa, Robert A. Peoples, John R. Snyder.

Rapid Electric Company, New York 61, N. Y. **76-77**
James A. Viola, Robert Tedeschi, George DeMirjian.

RAP Products, Inc., Bay City, Mich. **225**
Harry Loper.

Republic Lead Equipment Co., Cleveland 5, Ohio **297**

Reynolds Metals Company, Richmond 18, Va. **133-134**
Jack B. Kerr

Display

Demonstration of airless spray painting equipment. For more data circle 94 on Reader Service Card.

Demonstration of Oakite Cryscoat process of phosphatizing; Oakite Chromicoat for conversion coating of aluminum; Oakite Composition No. 3 for barrel finishing; Oakite Compositions No. 90 and 190 for electrocleaning; Pickle Control No. 5; and Rustripper, an alkaline rust remover. For more data circle 95 on Reader Service Card.

Cleaning equipment: a new model, combination wash-and-spray-rinse cabinet-type washer; an air-operated agitating washer. For more data circle 96 on Reader Service Card.

Tools for repairing tank linings; various types of tank linings applied by Perma-Line. For more data circle 97 on Reader Service Card.

Model monorail degreaser, batch-type degreasers and ultrasonic equipment. For more data circle 98 on Reader Service Card.

Metal finishing compounds for cleaning, pickling; zinc and cadmium brighteners, rinsing and drying aids, barrel nickel brighteners. For data circle 99 on Card.

Plating Magazine; A. E. S. Research Program.

Pressure Blast wet blast equipment; various abrasives. For more data circle 100 on Reader Service Card.

A method of finishing stampings, castings and machined parts by vibration will be demonstrated with two operating machines. For more data circle 101 on Reader Service Card.

Products Finishing Magazine; *Products Finishing Directory;* finishing equipment of "yesterday"; "Gay 90's" plating room.

Promat plating processes, conversion coatings, chemicals. For more data circle 745 on Reader Service Card.

Precision barrel finishing equipment, tumbling barrels. For more data circle 102 on Reader Service Card.

No. 2 Process hand-held electrostatic spray painting gun. For more data circle 103 on Reader Service Card.

Selenium, silicon and germanium rectifiers. For more data circle 104 on Reader Service Card.

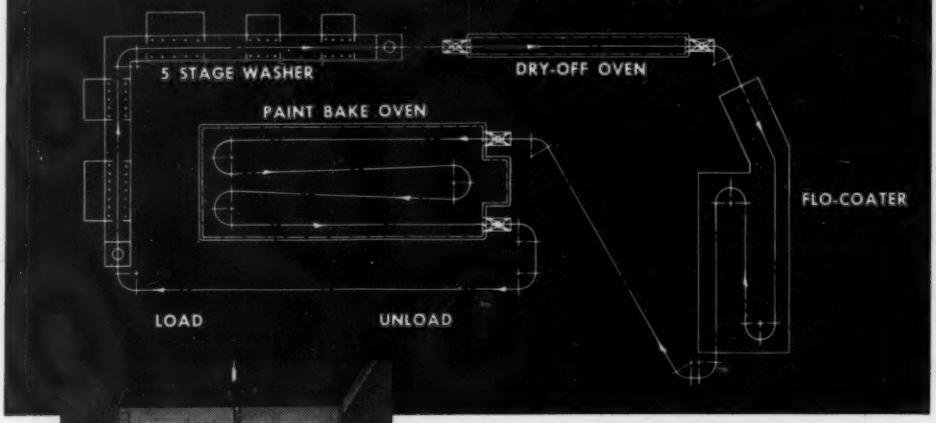
Non-flammable paint removers and cleaners. For more data circle 105 on Reader Service Card.

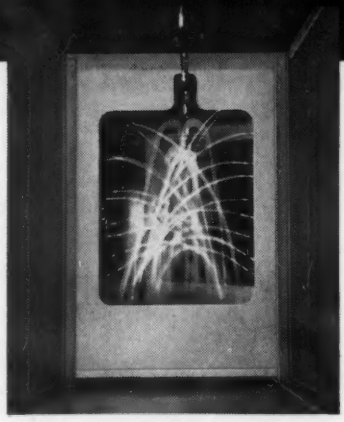
Chromium plating anodes. For more data circle 106 on Reader Service Card.

Finishes for aluminum. For more data circle 107 on Reader Service Card.

To page 102→

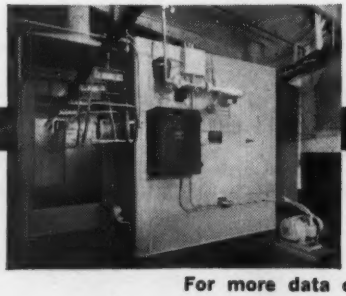
INTEGRATED





Unique lacquer Flo-Coater has wide flare and long flow path to suit the product—supermarket shopping carts and baskets. Compact MOCO installation gives substantial savings in coating materials over other systems.

Air-jet "curtains" at entrance and exit of MOCO baking oven act as a barrier against heat loss. The system is fully equipped with electronic flame failure safeguards.



Finishing Systems– *Cost Controlled* for Modern Production

Integrated Finishing Systems are more than just a plan and installation designed to meet the customer's needs in materials, space and output. At Michigan Oven, engineering a cost-controlled finishing system means equipping for today's demands, and for tomorrow's production.

The lacquer Flo-Coating system illustrated above is a complete and efficient system. Behind its installation lies a thorough study of the plant, of the product, of quality control and initial investment.

This finishing system will pay for itself in a relatively short time. It's engineered for economy, low maintenance and safety—and it will adapt readily to future expansion at low cost.

Send for a free MOCO bulletin showing typical finishing system applications, including products, process and specifications, or write for the name of the MOCO representative nearest you.

MICHIGAN OVEN COMPANY

MOCO

FINISHING EQUIPMENT DEPARTMENT

431 BRAINARD, DETROIT 1, MICHIGAN

Washing Machines • Bonderizing Units • Dry-off Ovens • Dip Tanks • Spray Booths • Flo-coaters • Finishing Ovens • Conveyors

For more data circle 362 on Postpaid Card

FROM MISSILES AND ROCKETS

Exclusive Precious Metals Plating Processes to meet your every requirement

The newest rockets, guided missiles, earth and sun satellites have a SEL-REX PRECIOUS METAL ELECTROPLATE on their electronic equipment and circuitry. The same quality and precision demanded by such applications is also being provided to leading jewelry manufacturers to help them make better, more salable products —at lower cost.

*SEL-REX BRIGHT GOLD—the standard of the industry — twice as hard as ordinary 24K Gold Plate — mirror-bright in any thickness, directly from the bath.

*AUTRONEX ACID GOLD—for the exacting industrial application — mildly acid electrolyte — *absolutely no free cyanide* — plates at room temperature.

*DOPED GOLD PROCESSES—doped with antimony or indium, depending on desired characteristics —best for Silicon and Germanium semiconductor applications.

*TEMPEREX — produces pure 24K Gold electroplate which will withstand higher temperatures than any pure Gold plate known.

*THERMOKARAT—produces exceedingly hard (470 Vickers) 18K Gold electroplate for decorative or industrial applications.

*RHODEX—a patented Rhodium plating process which yields compressively stressed, crack-free deposits, permitting thicker Rhodium electroplate than ever before possible.

PLATANEX L/S — low stress Platinum plating process produces essentially nonporous electroplate for high temperature and other exacting industrial applications—no intermediate scratch brushing or burnishing required.

*KARATCLAD GOLD PROCESSES — acid Gold processes for decorative applications — Jeweler's Finish in any thickness, in a wide range of non-varying colors.

BRIGHT RHODIUM PROCESS — yields brilliant, fine grained, non-tarnishing deposits. Manufactured in our own air conditioned laboratories, its purity assures consistent quality results for all decorative applications.

*SILVREX BRIGHT SILVER—mirror-bright deposits in any thickness, operates at room temperature in current densities from 10 to 40 asf—hard and ductile deposits.

SILVER SOL-U-SALT — a water soluble double cyanide salt—permits new ease and facility in the preparation of Potassium Silver Cyanide plating solutions.

POTASSIUM GOLD CYANIDE—the purest available—used in the preparation of our own exclusive Gold Plating Processes — manufactured in moisture controlled facilities.

INDUSTRIAL SILVER PLATING PROCESSES — a complete line of Silver plating formulations for high speed industrial applications.

*Patented and patents pending.

SEE *precious metals plating demonstrated*
Booths #235A to 238A
AES GOLDEN JUBILEE, JUNE 15 to 19th
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Sel-Rex®

PRECIOUS METALS DIVISION
SEL-REX CORPORATION
NUTLEY 10, NEW JERSEY

Manufacturers of Exclusive Precious Metals Processes, Metallic Power Rectifiers, Airborne Power Equipment, Liquid Clarification Filters, Metal Finishing Equipment and Supplies.

For more data circle 363 on Postpaid Card

Exhibitor	Booth No.

Schaffner Manufacturing Corp., Emsworth, Pittsburgh 2, Pa. . . **183-184**
W. A. Nelson, Robert Pinchot, Eugene O. Eagle, Norman McAndrew, Gus J. Schaffner, Jr., Paul E. Schaffner, Robert D. Schaffner, James R. Schaffner, Peter Verlinich.

Sel-Rex Corporation, Nutley 10, N. J. **235-238**
Morris M. Messing, S. S. Wilson, Sid Mitwol, E. C. Rinker, Al Korbelak, Jerry Ross, Peter Stevens, Carl Dowling, Fred Kulawick, Rene Sonnenfeldt.

Service Rack Division, Servi-Sure Mfg. Co., Chicago 7, Ill. **70**
James K. Trinz, Ernest Rosner.

Sethco Manufacturing Corp., Merrick, L. I., N. Y. **65**
J. L. Englesberg, M. Stoneman, W. J. Otto, R. Englesberg.

J. J. Siefen Company, Detroit 9, Mich. **250-251**
C. A. DeGroat, Ralph Hale, D. W. Trethric, Eldon Brisson, Alfred Darnell, Cameron Elliott, Vic McBride Travis Bernstein, Louis Misenti.

Siefens Compounds, Inc., Detroit 38, Mich. **23**
John F. Siefen, Arnold J. Emmerich, George D. Foster, Leonard F. Pravel.

Sifco Metachemical, Inc., Cleveland 3, Ohio **122-123**
Dennis Hughes, Ben Schwartz, Stanley Ogden, Joe Popeley, A. H. Milnes.

Solventol Chemical Products, Inc., Detroit 3, Mich. **174-175**
C. A. German, G. Alandt, K. O. Lenhard, R. W. Fraser, J. W. Ninnemann, R. Woodman.

Sparkler Manufacturing Co., Mundelein, Ill. **286-287**
W. S. Mullen, D. F. Cooper.

Standard Plating Rack Co., Chicago 22, Ill. **52**
Max S. Schneider, Chester Beyer, John Maslowicz, Lloyd Holtz, R. W. Gates.

Frederic B. Stevens, Incorporated, Detroit 16, Mich. **191-194**
Messrs. Hoefer, Cluff, Watt, Cummings, Singer, Anderson, Johnson, Norton, Moser, Chester.

F. J. Stokes Corporation, Philadelphia 20, Pa. **94-95**
A. D. Garwood, M. Gilbert, W. Henneman, M. Adler, R. Watkins, J. West.

Display

Buffing wheels and buffing compounds. For more data circle 108 on Reader Service Card.

Demonstration of the Karatclad gold plating process, a recently introduced gold plate that is mirror bright, can be applied in any thickness, in a wide range of colors and shades; the Jet Plater, a complete precious metals plating facility in a single cabinet; and Sel-Rex rectifiers and filters. For more data circle 109 on Reader Service Card.

Racks for anodizing, racks for electropolishing. An adjustable all-titanium rack that is made from a rigid titanium spline onto which various types of all-titanium work holders may be mounted or spaced as desired. For more data circle 110 on Reader Service Card.

A full line of filter pump units, ranging in capacity from 50 to 3,000 g.p.h., with particular emphasis on models for filtering precious metals, ultrasonic cleaning solutions, cyanides and other solutions that require effective filtration. Filter pump with a "canned" pump housed in the motor will be on display. For more data circle 111 on Reader Service Card.

Buffing heads in operation, using Siefen liquid spray buffing compound application equipment. For more data circle 112 on Reader Service Card.

Manufacturing of liquid buffing compounds; exhibit of drawing compounds and compound application equipment. For more data circle 113 on Reader Service Card.

Dalic process of selective plating; micro-grain nickel plating; hard chromium plating; chromium plating on aluminum; chromium plating on molybdenum; nickel plating on titanium; plating on plastic. For more data circle 114 on Reader Service Card.

Solventol metal cleaning compounds for the plating industry. For more data circle 115 on Reader Service Card.

Filtration equipment engineered for use in filtering plating solutions; a fully automated Sparkler Model RSC Filter that is designed for either wet or dry cake discharge; working models of other filters; the Sparkler wash-off cartridge, which was conceived and engineered for use in filters used to process plating solutions. For more data circle 116 on Reader Service Card.

Erect-A-Rack plating and anodizing racks and accessories. For more data circle 117 on Reader Service Card.

Little Steve automatic plating machine; Roto-Finish Vibraton machine; special automatic barrel unloading display; special display of polishing and buffing compositions. For more data circle 118 on Reader Service Card.

Examples of products finished by vacuum metallizing; Model 425-3 24-inch-diameter vacuum metallizing unit, a push-button-controlled, completely self-contained unit that is capable of short cycles and low-cost production. For more data circle 119 on Reader Service Card.

To page 106→

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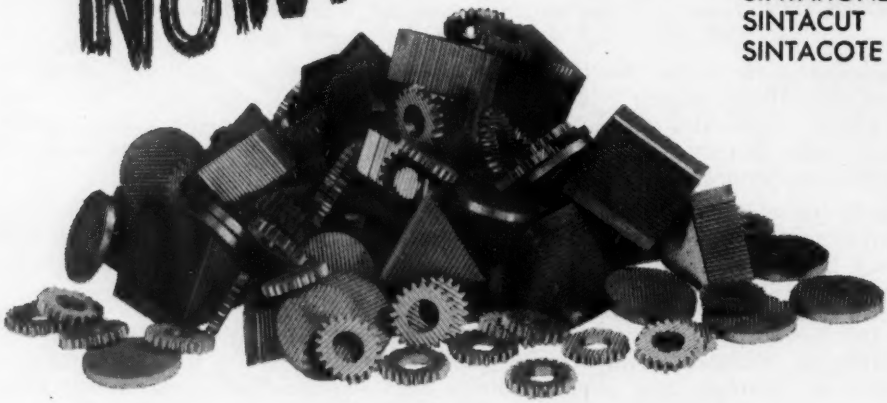

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Here is an entirely new type of tumbling media with unique advantages for deburring, grinding, burnishing, and dry lubricant coating. These new media are produced by an exclusive Dixon Sintaloy process which permits low-cost, mass production of shapes with characteristics scientifically controlled for barrel finishing requirements.

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Greater efficiency — more uniform results — the ideal media for the job means faster more efficient cutting, more uniform finished parts.

Simpler standardized operation — no compensating for wear during runs — speeds, simplifies and saves labor and assures higher work quality.

Write or wire direct to factory for full data.

DIXON SINTALOY INC.

a subsidiary of The Joseph Dixon Crucible Company
537 Hope Street, Stamford, Connecticut

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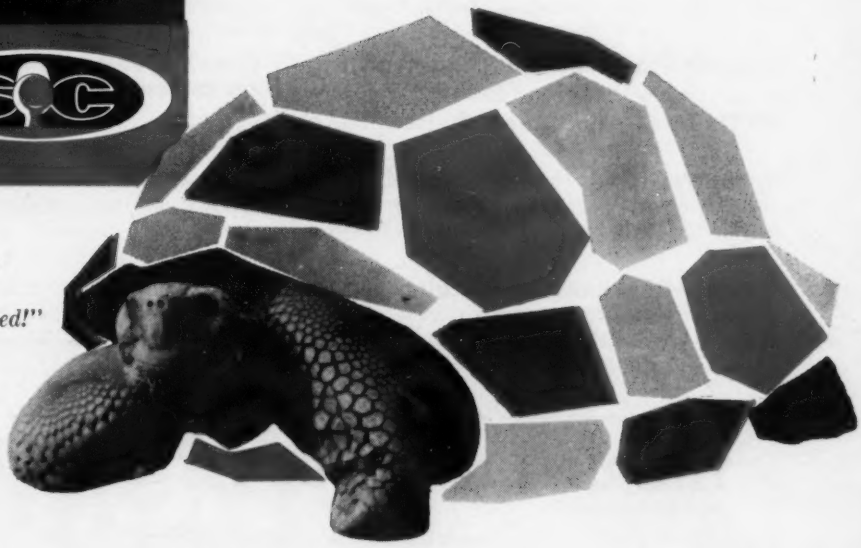
A PURE BAKE EPOXY THAT BAKES AT 325° F IN 5 MINUTES!



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- Three to four times better salt spray and humidity resistance than conventional bake coatings
- Color suitable for whites and white tints
- Hardness . . . . . Excellent
- Adhesion . . . . . Outstanding
- Impact . . . . . Excellent
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- Hot mar resistance . . . . . Excellent

*Can be hand sprayed, electrostatically sprayed or roller coated.

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(name) _____
(company name) _____
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(city _____ zone _____ state)_____

Exhibitor	Booth No.

The Stutz Company, Chicago 24, Ill. **257, 260**
George A. Stutz, Joseph B. Niles, sales representatives.

Techline Division, Wheelabrator Corp., Vicksburg, Mich. **118-119**
J. A. Schmidt, Jr., G. H. Lieser, Lee D. Stevens.

Technic, Incorporated, Providence 1, R. I. **217**
A. M. Weisberg, Dr. Edward A. Parker, H. L. Ferguson, Gerald Naves.

Ther Electric & Machine Works, Chicago 6, Ill. **258-259**
Charles F. Norcross, Phillip H. Watt.

Tranter Manufacturing, Inc., Lansing 9, Mich. **214-215**
J. R. Tranter, S. J. Stowell, H. E. Guyselman, R. S. Rowland.

H. O. Trerice Company, Detroit 16, Mich. **253, 256**
John Brackett.

Turco Products, Incorporated, Los Angeles 1, Calif. **296-297**
C. F. Devine, Paul Rebel, Jr., O. R. Jackson, Art Mason, John Wanty.

Udylite Corporation, Detroit 11, Mich. **239-244**
Howard Ward, Larry George, Bert Lupien, Jim Clifford, John Giere, John Daly, G. S. Woodruff, Don Symons, Jack Senger, Frank Reha, Harvey Zens, Russell Reynolds and Pat Driscoll.

THORNTON PRODUCTS COMPANY

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Electroplating of Acid-Zinc, Titanium-Zinc, and Cooper Acid Copper on Aluminum, Magnesium, and Steel.

Thornton Products Company

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Tecumseh, Michigan

(adjoining Tecumseh Airport)

For more data circle 366 on Postpaid Card

Display

Mechanical electroplating equipment. For more data circle 120 on Reader Service Card.

Barrel finishing equipment, media, compounds; Liquamatte wet blasting equipment. For more data circle 121 on Reader Service Card.

Soluble precious metal plating solutions. For more data circle 122 on Reader Service Card.

Rectifiers for electroplating, with particular emphasis on the latest trends in types and styles of rectifiers; a display of research projects being carried out in the rectifier field. For more data circle 123 on Reader Service Card.

"Platecoil" heat exchangers for all types of heating and cooling processes. For more data circle 124 on Reader Service Card.

Automatic temperature controls. For more data circle 125 on Reader Service Card.

Miniature tanks in operation to demonstrate Turcoat 4474, a new low-temperature phosphatizing compound; another series of tanks will be in operation demonstrating Turcoat 4178, a conversion coating for aluminum. For more data circle 126 on Reader Service Card.

V.I.P. single-control automatic plating conveyor; Cyclemaster fully automatic plating machine; company's research and experimental program; company's electrical manufacturing assembly line; Project Alert and revitalization of worn equipment; the Udylite production story. For more data circle 127 on Reader Service Card.

FICTION and FACT

FICTION: R P Paint Arrestor Equipped Booths Cost More than other Methods of Paint Overspray Removal.

FACT: Comparisons Show R P Paint Arrestor Booths' Operating Cost 30-50% Less than Water Wash Booths of Equal Size.

RP® PAINT ARRESTORS

Photo Courtesy American-Standard, Elyria, Ohio Plant

R P Paint Arrestors save money in other ways, too. Maintenance is simple—labor costs average 40 to 85% less than for equivalent water wash booths. Down-time is reduced considerably, production is increased, less floor space required. And, with all the savings, R P Paint Arrestors are more efficient—and adaptable to almost every type operation Write for more information.

RESEARCH PRODUCTS Corporation
Dept. 38, Madison 10, Wis.

For more data circle 367 on Postpaid Card

Exhibitor	Booth No.
Unit Process Assemblies, Incorporated, New York 3, N. Y. S. U. Lieber, L. Packman.	248
U. S. Stoneware Company, Akron 9, Ohio	298
Universal Tumbling Supply Company, Detroit 23, Mich. C. R. Schuur, Douglas Schuur, L. L. Schuur.	46
Univertical Foundry & Machine Company, Detroit 27, Mich. Charles T. Walker, Marco Schalom, Mickey Mitchell, Myrt Walker, Marie Feeney, Celia Shalom.	163-164
Vanton Pump & Equipment Corporation, Hillside, N. J. S. F. Cooper, D. C. Huber, Jerry Lewis, Felix Mirucki.	210
A. T. Wagner Company, Detroit 7, Mich. Delas R. Hay.	66
Wayne Products Corporation, Palatine, Ill. Wayne Goodpasture, Jack Berg, Alex Burdnick.	10
Westinghouse Electric Corporation, Pittsburgh 30, Pa.	195-198
Wyandotte Chemicals Corporation, J. B. Ford Div., Wyandotte, Mich. P. N. Burkard, E. J. Kubis, T. S. McCormick, R. C. Gertson, E. G. Nutting, R. J. Lang, R. S. Keen, D. Snelgrove, B. Kumko, A. J. Medwedeff, John Harden, John Komon.	157-159

for the "Solution to your Plating Problems" .... come to JELCO

One of America's leading manufacturers
- BRASS Additive
- COP-BRITE
- BARREL COPPER Brightener
- BARREL NICKEL Brightener

For technical information, complete details and prices ... write to

THE BRIGHT COPPER PROCESS!

COP-BRITE ... *can be used in both Still and Barrel Plating Solutions*

- *Increases plating production ... tremendously*
- *Works in regular copper solution*
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For more data circle 368 on Postpaid Card

Display

"Dermitron" non-destructive coating thickness tester; periodic reverse units for plating, alkaline derusting and descaling. For more data circle 128 on Card.

Corrosion resistant materials. For more data circle 129 on Reader Service Card.

Tumbling chips, processed limestone and granite chips, compounds, parts that have been processed. For more data circle 130 on Reader Service Card.

Anodes, anode hooks, anode baskets. For more data circle 131 on Reader Service Card.

Vanton plastic sealless pumps, PVC centrifugal pump, Vanton Flexiliner pumps, PVC strainers, Flex Plug valves. For more data circle 132 on Card.

Plating supplies. For more data circle 133 on Reader Service Card.

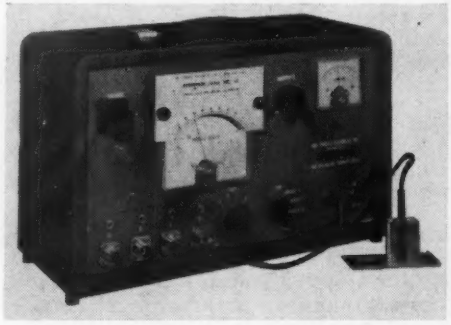
Filters, pumps, dipping baskets, tanks. For more data circle 134 on Reader Service Card.

Complete line of electrocleaners; Bufsol, a water-soluble buffing compound remover; Ferlon, an alkaline rust remover; Nordall, a spray cleaner; and a number of chemical products for processing aluminum; Pre-fos, a phosphatizing compound; and Zorb-all and Blot, general purpose mineral absorbents. For more data circle 135 on Reader Service Card.

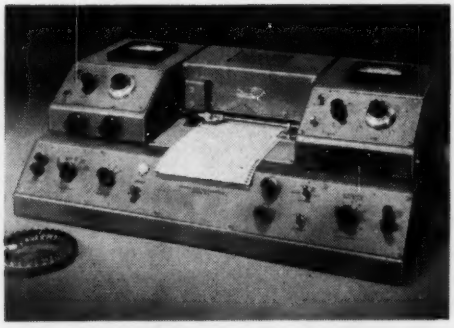
For more data circle 369 on Postpaid Card

Photo Preview: Industrial Finishing Exposition

Some of the many products that will be shown in Detroit June 16-19.



***NON-DESTRUCTIVE THICKNESS TESTER** determines coating thickness, will be displayed in Booth 248 by Unit Process Assemblies, Inc.*



***RECORDING ELECTRO-POLARIZER** analyzes plating solutions. It will be on display in American Optical Company Booth, No. 296B.*

***BARREL FINISHING AND WET BLASTING EQUIPMENT AND SUPPLIES** can be viewed in Booths 118-119, an interesting display set up by Techline Division of Wheelabrator Corporation.*

To page 114→

What's glue got to do with the price of finishing?

Stuck? Then you'll be interested to learn that glue is but one of several bonds used to hold the cutting grains to the backing in the manufacture of coated abrasives. Varnishes and resins are also common bonding materials. The problem is to select the proper bonding material to assure maximum belt life. Jewel Brand Abrasive Engineers know, for example, that glue is commonly recommended for dry, low heat applications while resins are usually required where toughness and resistance to water, heat and high working pressures are in demand. Their ability to recommend the proper bonding material often results in substantial savings in time, labor and materials. It will pay you to put their knowledge to work for you. Write for complete details. Abrasive Products, Inc., 509 Pearl Street, South Braintree, Mass.

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ABRASIVE PRODUCTS, INC., South Braintree 85, Massachusetts

For more data circle 370 on Postpaid Card

THE QUALITY LINE THAT MEETS EVERY PRE-PAINTING REQUIREMENT

PHOSPHATE AND CONVERSION COATINGS AND PAINT BONDING PROCESSES.

ACID AND ALKALINE METAL CONDITIONERS AND CLEANERS.

HOT AND COLD PAINT STRIPPERS.

Also we develop special methods and product formulations to apply where standard procedures are not suitable.

Use

PREP PRODUCTS

for better results with low operating and maintenance cost. Treat your metals before painting the safe proven way

Write Today for Bulletins to fit your needs . . .

See opposite page ➡

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PREP PRODUCTS

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Prep-n-Cote

Multi-Purpose, Corrosion-Resisting, phosphate coating and cleaning product for mechanical cleaning systems . . . Described in Prep-n-Cote Bulletin 53-91.

Metalprep

General all-purpose Rust Remover and Metal Cleaner, available in wipe-off and dip type grades. Described in Metalprep Bulletins 56-34 and 58-37.

Lyfanite-A

Corrosion-proof coating for aluminum alloys, provides excellent paint bonding base and thousands of hours of salt spray and humidity resistance . . . Described in Lyfanite A Brochure, 55-133.

Galvaprep

Provides greater paint adhesion on Galvanized Iron, Galvanneal and other zinc-coated surfaces . . . Described in Galvaprep Bulletin 53-89

Phosteem

Cleaning and phosphatizing processes using steam guns. Low equipment cost. Ideal for treating large bulky articles economically. Phosteem Brochure 55-137.

Prep-pik-l

Heavy Rust and Light Scale Remover; non-corrosive on surrounding equipment . . . Described in Prep-Pik-L Bulletin 57-3.

Lyfanite-Z

Zinc phosphate coating process for ferrous metals, provides increased resistance to corrosion and excellent paint bonding base . . . Described in Lyfanite Z Brochure, 55-133.

Alumiprep

General all-purpose Metal Conditioner for Aluminum Alloys, available in wipe-off and dip grades . . . Described in Alumiprep Bulletin 53-62.

Emulsoprep

Emulsion and Alkaline Metal Cleaners, available for all types of metals and applications, dip or spray . . . Described in Emulsoprep Bulletin 58-61.

Strip-prep

A cold paint stripper, non-flammable, non-corrossive, safe and easy to use. Various formulations available to meet your particular paint stripping needs. Strip-Prep Brochure 59-162.

Rinseprep

Final acidulated rinse product used after phosphate coating or cleaning in general. Rinseprep Bulletin 58-110.

Lyfalube

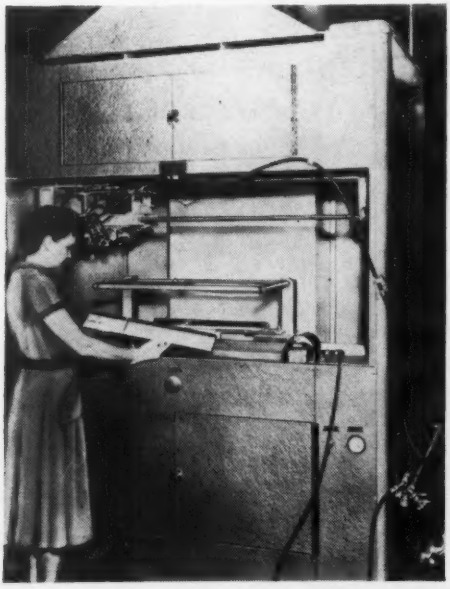
Heavy phosphate coating to aid in deep drawing and forming operations. Lyfalube Bulletin 58-134.

Send for General Prep Brochure 57-147

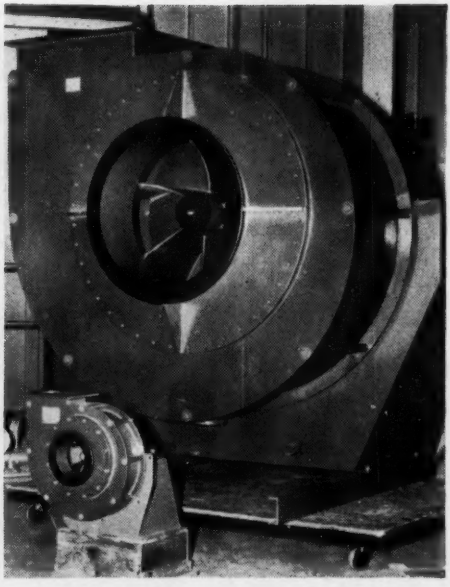
PREP PRODUCTS *Used First*
Make the Paint Finish Last

For more data circle 371 on Postpaid Card

Finishing Exposition Photo Preview . . .

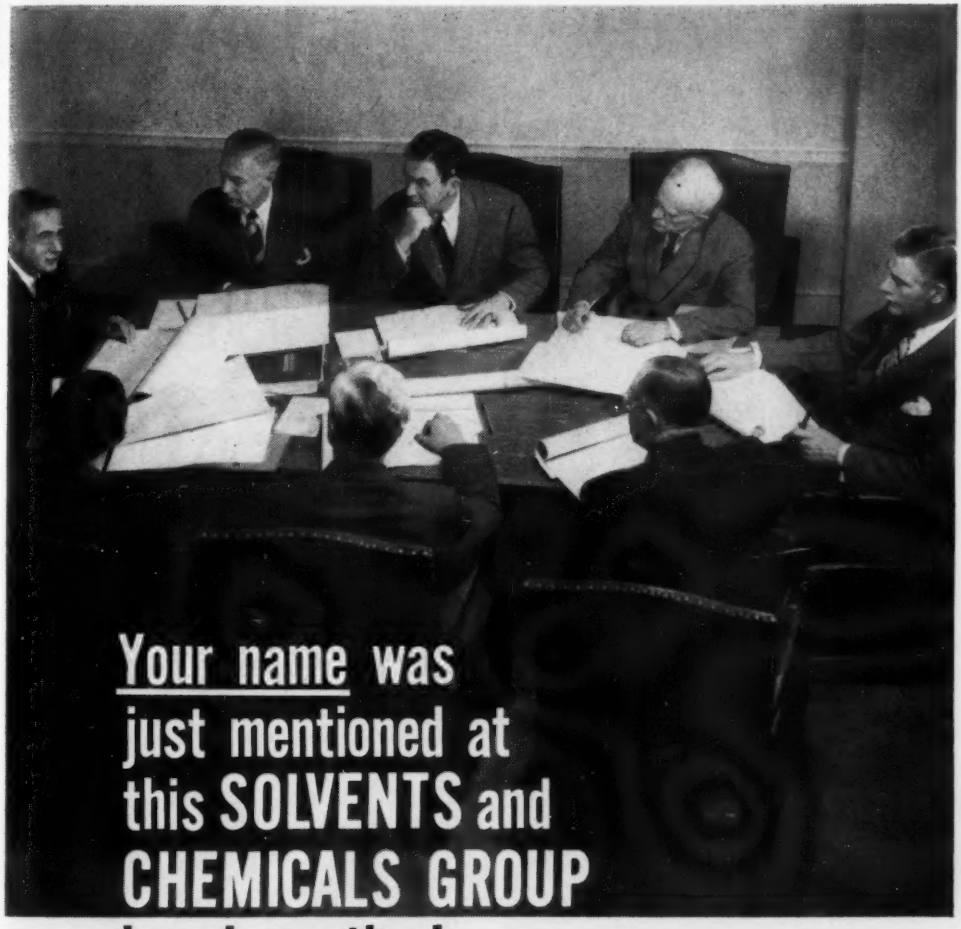


SPRAY DECORATING MACHINE, Model 4800, masks parts and sprays with reciprocating gun, is especially useful for spray decorating large parts. It will be shown by Finish Engineering Company in Booths 228B, 229B.



POLYVINYL CHLORIDE PLASTIC EXHAUST FANS, fiberglass centrifugal fans, air washers, and other corrosion-resistant equipment will be displayed by Industrial Plastic Fabricators, Incorporated, in Booths 135C, 136C.

A COMPLETE LINE OF CLEANERS AND TREATMENTS FOR METALS will be described and illustrated by representatives of Wyandotte Chemical Corporation in Booths 157B, 158B, 159A.



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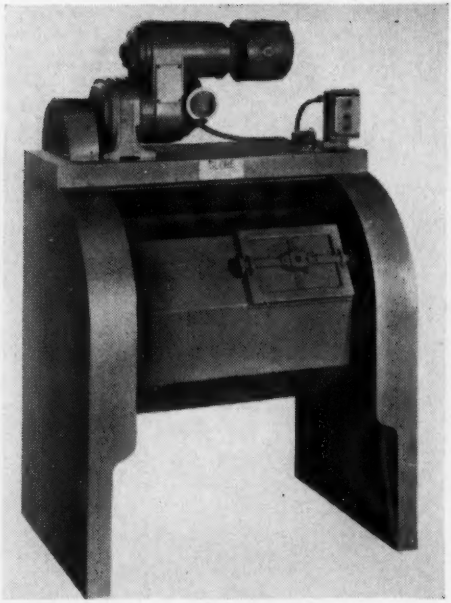
Finishing Exposition Photo Preview . . .

***FLAP-TYPE COATED ABRASIVE POLISHING WHEEL** made by Merit Products, Inc., is built up of segments so that the unit can be left on the lathe spindle while abrasive is replaced. It will be shown in Booth 173.*

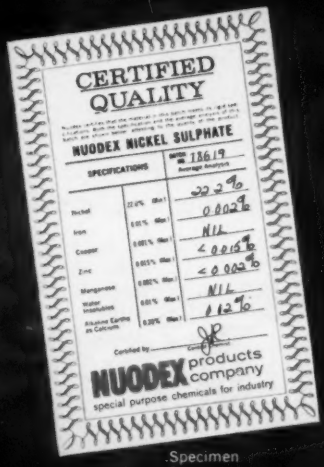


***BARREL FINISHING EQUIPMENT** such as this 3000 Series, Model 3200 Burr-Rite Senior barrel finisher will be shown by Globe Division of Casalbi Company in Booth 17, along with media, compound samples and parts.*

***CHEMICAL NICKEL COATING** will be featured by General American Transportation Corporation, Kanigen Division, in its Booth, 252.*

***ROTARY AUTOMATIC BUFFING MACHINE** will be displayed by Hammond Machinery Builders, Incorporated, in Booths 261-266.*

The most important benefit in plating today



Specimen Certificate

Every package of Nuodex Nickel Plating Chemicals bears a signed certificate with complete specifications and exact analysis. There's no doubt about it. Only Nuodex gives you this assurance of consistent high quality and purity. Buy the best . . . it costs no more.

NICKEL SULPHATE • CHLORIDE • CARBONATE

Also available—**Nickel Acetate • Formate • Nitrate**

Sold exclusively through leading suppliers of plating chemicals. Write for the name and address of the one nearest you.

NUODEX special purpose chemicals for industry

NUODEX PRODUCTS COMPANY • ELIZABETH, NEW JERSEY

A Division of Hayden Newport Chemical Corporation

Fungicides • Nickel Salts • Organic Peroxides • Paint Additives • Stearates • Vinyl Additives

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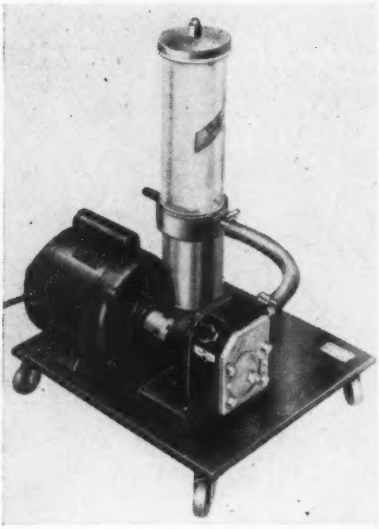

***FILTER PUMPS** especially designed for filtering corrosive plating solutions will be exhibited by Sethco Manufacturing Company in Booth 65C.*

←

★ ★ ★

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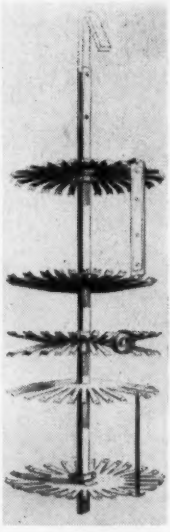
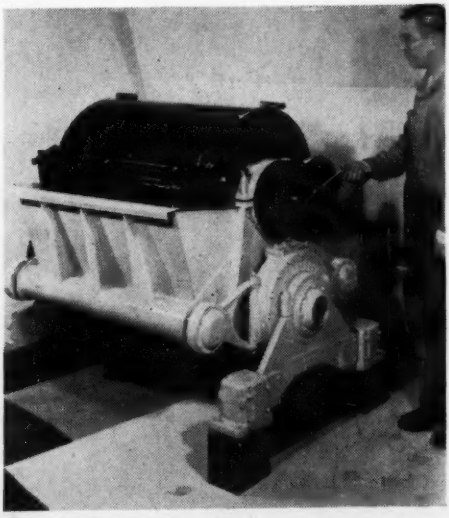
***TITANIUM ANODIZING RACKS** that are adjustable to accommodate various sizes and types of parts will be shown by Service Rack Div. of Servi-Sure Manufacturing Co., Booth 70.*



***ABRASIVE BELT MACHINERY** such as this TTS-2500 Table Tongue Sander will be displayed by Bush Mfg. Co. in Booths 79, 80.*



***A NEW METHOD OF FINISHING STAMPINGS, MACHINED PARTS AND CASTINGS** will be demonstrated in Booths 85 and 86 by Productive Equipment Corporation. Machine has a vibrating hopper which rotates the abrasive media and the parts that are being finished without revolving the hopper itself.*

"PROOF of THE FINISH is in THE OVEN" ...to a great extent.

We're inclined to base this statement on the testimonies of the many manufacturers we have been privileged to serve.

High volume, high quality finish production is almost a necessity everywhere today.

Users of our oven designs and installations tell us they are accomplishing this with comparatively low operating costs.

This makes for satisfaction all around.

Typical Quotes from Many of the Satisfied Users of LANLY Ovens in Diversified Industries

"Our paint appearance and gloss has improved considerably since we installed the New *LANLY BAKE OVEN.*"

R. O. R.

"We bake twenty-two colors in pastel shades on metal. With the LANLY OVEN we have experienced highly satisfactory results in obtaining uniform color and complete baking."

K. W. B.

We'll welcome the opportunity to discuss your drying and baking operations with you without obligation.

WRITE FOR THE CATALOG . . .

LANLY
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THE LANLY COMPANY • 760 PROSPECT AVE
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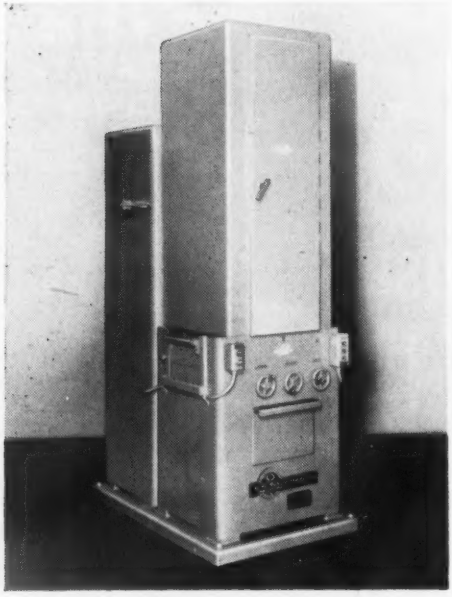
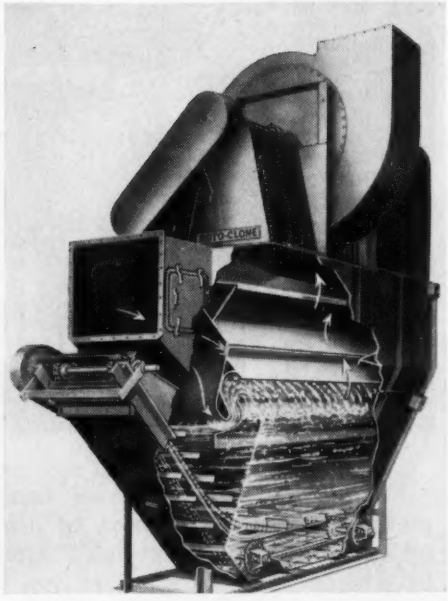


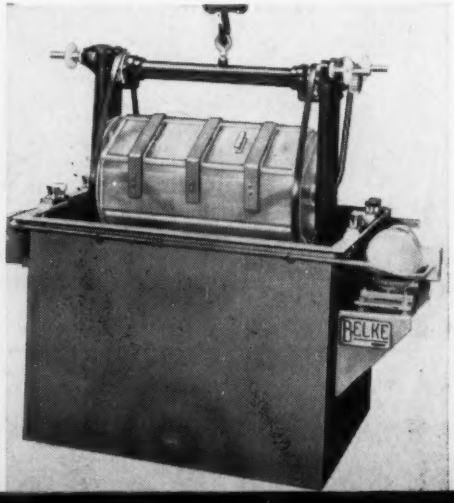
FLAT STOCK FINISHER, a new Acme Model KP-8, will be displayed in Booths 270A, 271B and 272A by Acme Manufacturing Company.



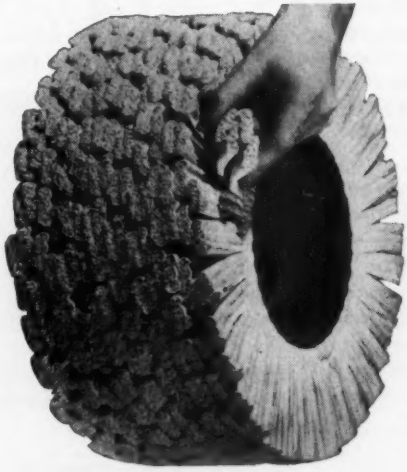
DUST COLLECTOR of the type shown in this cutaway drawing will be shown in Booths 129 and 130 by American Air Filter Co., Inc.

HC-36-P RIGIDON SOLID PLASTIC FAN will handle up to 25,000 c.f.m. of corrosive fumes. Heil Process Equipment Corporation will demonstrate this fan in Booths 285, 288.

PLATING BARREL like this one plus racks, rectifiers and other plating and anodizing equipment will be displayed by Belke Manufacturing Company in Booths 143-146.



*Specify the Churchill 20-RD Sisal Finger-Buff**



APPROVED STANDARD OF THE INDUSTRY OVER THE YEARS

Improved construction of the new sisal type No. 20-RD Churchill Finger-buff* provides new, effective cutting action . . . particularly adapted to perform the heaviest of buffing operations.

Made from the same high quality, super-twisted sisal twine as other popular Churchill sisal wheels, construction of this No. 20-RD provides a wheel in which groups of the sisal twine contained in each finger are combined to form individual units which add strength and rigidity to each finger. In addition, extra sewing on each finger aids in the maintenance of each unit under severe usage.

The new construction greatly increases the life and cutting power of this extra heavy-duty Churchill Sisal wheel No. 20-RD.

*Churchill Finger-Buff, T.M. Reg. U.S. Pat. Off.

REPRESENTATIVES IN PRINCIPAL CITIES

Geo. R. Churchill Co., Inc.

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ONLY ACOUSTICA ULTRASONIC CLEANERS HAVE MULTIPOWER!

The Multipower transducer multiplies the power and efficiency of ultrasonic action. Cleaning is faster, labor costs are lower. Acoustica ultrasonic cleaners are unequaled in quality and value. Off-the-shelf in capacities from 1 to 75 gal. or custom built to 5000 gal. Expert engineers can help you with your cleaning problems.

Send for further information
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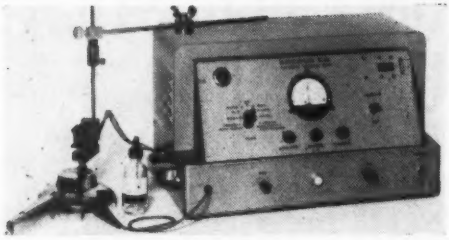
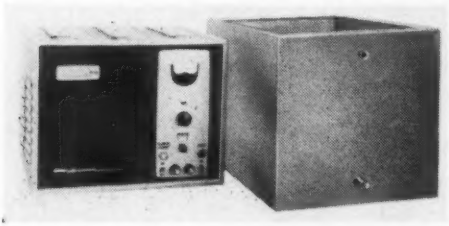
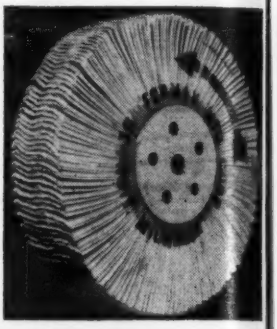


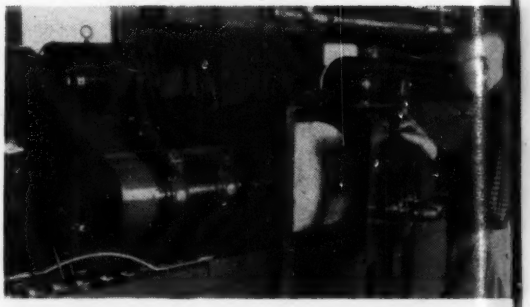
ELECTRONIC THICKNESS TESTER will be demonstrated by Kocour Co. in Booths 67-68.



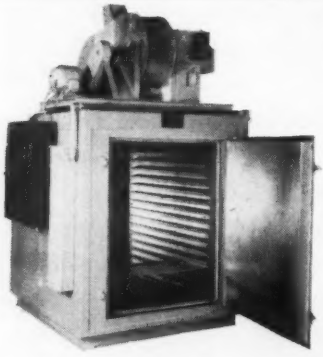
ULTRASONIC CLEANING EQUIPMENT will be among the cleaning and degreasing equipment that will be displayed by Circo Equipment Company in its Booths, 120-121.

BUFFING WHEELS trade-named "No-Streak Buffing Wheels" will be displayed by Formax Manufacturing Corporation in Booths 231-234. This buff is said to provide improved cut and brighter, streak-free finishes. It has more cotton sheeting per square inch of wheel face, holds a better head of compound, and is self cooling, manufacturer states.





AUTOMATIC POLISHING AND BUFFING MACHINERY will be displayed by A. H. Losey Co. in Booth 78 at the Exposition.



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Complete Finishing Systems Designed Especially for You. Fabricated in Our Own Factory.

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Write or Phone for Quotation

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ZINC PLATERS: Purify your cyanide zinc solutions with

McKeon's **Zinc-Brite**

Regular use keeps zinc solutions clear. Brightens Work.

Write—Phone—Wire Collect for free brochure

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finishing clinic

Suggested solutions to problems submitted by readers. Send your problem to our Editorial Staff. There is no charge.

Barrel Finishing Steel Parts Prior to Plating

Note: In a recent issue of PRODUCTS FINISHING, a reader outlined his problem in obtaining a smooth bright finish on steel by barrel finishing methods so that the products could be subsequently nickel plated.

Readers have offered additional suggestions and these are outlined below.

Answer No. 1. To eliminate impingement or nicking use a smaller aluminum oxide chip—4½ (about ¼ to ⅜ inch). This will create a more tightly packed load. I would substitute an abrasive grinding compound for the non-abrasive grinding compound now being used. This should compensate for the chip size reduction in keeping tumbling time to a minimum. The 16-18 r.p.m. would seem satisfactory considering the 4 cu. ft. barrel size. To obtain a little more cushioning the water level could be raised to barely cover the load.

For burnishing after smoothing, I would suggest using the same chips with a proper burnishing compound, thus eliminating an unloading and separating operation.

If the foregoing does not eliminate would suggest using the same chip with a proper burnishing compound, the nicking which T. J. S. reports, less parts per load and a slower barrel speed should solve the problem.

Employment of the smaller chip should produce a finer-grained and smoother finish. Excellent burnishing can be obtained with proper compounding and aluminum oxide chips. Steel balls as a burnishing media will also improve the lustre.

N. F. P.

Answer No. 2. It appears that the barrel is overloaded with parts. I advise a 3 or 4 to 1 ratio of media to parts, using chips of ⅝ inch with 1 lb. of a silica-based compound and 2 oz. of trisodium phosphate or soda ash. Barrel speed should be 15 r.p.m. maximum. After the barrel has run for six hours, ½ lb. of the compound should be added. Flush rinse with any mild alkaline compound. Then rinse once with clear water. Then add 1 lb. of burnishing compound, cover with water, and burnish for 1 hour.

C. G. T.

★ ★ ★

Paint "Cratering" On Metal Parts

Question: *We have a recurring problem with "cratering" in our spray paint department. It is not confined to any one type of material nor to any one supplier's material. We do feel that we have established beyond a reasonable doubt that the trouble is not in the air used in spraying but*

PLASTISOLS for Spraying • Dipping • Moulding • Laminating

Many Stanley PLASTISOLS and Organosols available in stock may meet your needs. Send us your requirements.

No. 77X-1078 Chemical-Resistant PLASTISOL (for dip applications), proven coating for plating racks, grids, material handling equipment, etc.

No. 77X-2176 Spray PLASTISOL, perfect corrosion protection for linings of chemical tanks, washing machines, etc.

Spray PLASTISOLS can be applied in thicknesses from 6 to 60 mils. PLASTISOLS custom-formulated for unusual applications.

Write for free: "Plastisols and Organosols in Industry"

STANLEY

STANLEY CHEMICAL COMPANY
Subsidiary of The Stanley Works
DEPT. F, 1338 BERLIN STREET, EAST BERLIN, CONN.

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS

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that's about all we seem to have been able to establish.

The material seems to pull away in holes from pinpoint size to 1/32 inch from the base material we are covering—steel, aluminum, plastic—leaving the bare material showing through a film of paint so thin as to be transparent.

A. P. M.

Answer: It may be that the metal or plastic material which you are covering is not clean. Your description suggests the possibility that the base metal is covered with a film of some material which is not compatible with the paint being used.

You may find it helpful to contact representatives of companies manufacturing cleaners of various kinds. These are listed in the PRODUCTS FINISHING DIRECTORY, which I am enclosing, on pages 50 through 56. Many of them probably have representatives in your area who can be located through the "yellow pages" of your telephone book.

Another possibility which you may wish to discuss with these cleaning company representatives is that of using a wetting agent of some sort in your metal preparation.

★ ★ ★

Removing Scale from Dies

Question: *Please give us the names of several firms who make liquid honing equipment which is used for removing scale from small steel jewelry dies.*

S. G.

Answer: Companies who manufacture liquid honing equipment are listed in the PRODUCTS FINISHING DIRECTORY on page 13 under the heading "Abrasive Blasting Equipment, wet, vapor."

Tumble Painting of Small Parts

Question: *We have seen samples of dowels and knobs that have been finished in various colors. The parts appear to be smoothly finished and quite possibly they have been tumble painted.*

We would like to finish some of our parts by this method and would appreciate any information that you could give us on the materials and methods used.

G. W. N.

Answer: You may find the article, "Barrel Enameling" beginning on page 40 of the April issue of PRODUCTS FINISHING of interest in connection with your problem. Additional information may be obtained from the manufacturers of "Painting Equipment, tumble," listed on page 135 of the PRODUCTS FINISHING DIRECTORY.

A Survey of Paint Application Methods

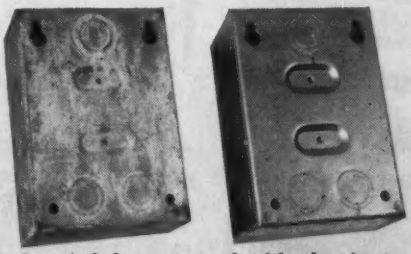
A series of articles on painting methods have been reprinted as a 64-page booklet.

Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

Reprints of *A Survey of Paint Application Methods* are available at 50 cents a copy. Write to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.

STANTITE Spraying Wash Primer No. 66R-3157A

To improve all finishes and make them last !



Both switch boxes treated with aluminum synthetic. Box on right STANTITE primed. Both exposed to salt spray test for 200 hours. STANTITE gives products longer life.

- New type rust-inhibiting primer improves quality of *any* topcoat, air-dried or baked.
- Prevents "rust creep."
- Concentrated to minimize the settling of zinc chromate.
- Fast drying . . . exceptional adhesion to ferrous, nonferrous metals and glass.
- Perfect base for lacquers, vinyls, alkyds, ureas, melamines, enamels, japans.

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Subsidiary of The Stanley Works
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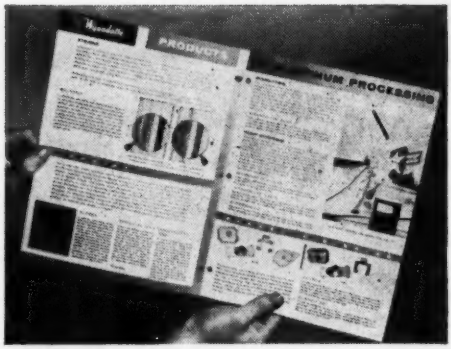
NEW BOOKS



Products for Aluminum Processing. Products and cleaning procedures for aluminum processing is the subject of a folder released by J. B. Ford Division, Wyandotte Chemicals Corporation.

Etching, cleaning before anodizing, desmutting, paint stripping, barrel finishing, deoxidizing are among processes described.

For copies of Wyandotte's "Works Wonders with Aluminum" write Industrial Department, J. B. Ford Division, Wyandotte Chemicals Corporation, Wyandotte, Mich.

★ ★ ★

Spray Painting Equipment Catalog. A catalog of spray painting equipment includes

H. W. Kramer
YOUR KEY TO BETTER FINISHING...

BUFFING LATHE
1 to 7½ H.P. Ball Bearing V-Belt Drive. Pre-determined speed set at factory or to your specifications. Buffing wheels and compounds available for every industry . . . Special compounds recommended for Special applications.

SINGLE BARREL TUMBLER
Size: 30" x 36" or engineered to your specifications. Barrels lined with kiln-dried and glued maple. Child's play to operate. Economical on space as motors are individually mounted overhead—double decked or single. Tumbling supplies available also.

Write Dept. GF for Detailed Information

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Amchem Alodine . . .

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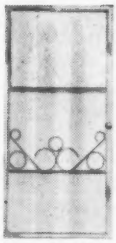
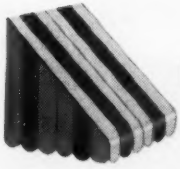


PROTECTIVE



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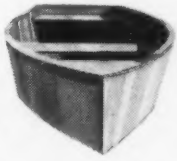

CONVERSION

COATINGS

FOR ALUMINUM

If you fabricate aluminum products —painted or unpainted—Amchem Alodine can provide you with an effective and protective chemical conversion coating process of remarkable characteristics.

The Amchem Alodine process forms an amorphous coating which becomes an integral part of the metal, enhances the natural corrosion resistance of the aluminum and provides an excellent bond for paint.

Alodine's simplicity, speed and economy as a prepaint treatment has gained widespread commercial acceptance in a wide variety of product applications.

Beyond product, Amchem provides the metalworking industry a complete service—processes, technical and engineering assistance, installation and instruction service—for corrosion protection, paint bonding, or other metalworking problems.

Write for complete information contained in Bulletin 1424A describing the uses of Amchem Alodine, as well as other literature pertinent to Amchem chemical conversion processes for the metalworking industry.

AMCHEM **ALODINE**

Amchem Alodine is another chemical development of **Amchem Products, Inc.,** Ambler, Pa. • Formerly American Chemical Paint Company • Detroit, Mich. • St. Joseph, Mo. • Niles, Calif. • Windsor, Ont./Amchem and Alodine are registered trademarks of Amchem Products, Inc.

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details on cup guns, Redi-Sprays (for spraying multi-color paints and enamels from original 1-5 gallon shipping pails), direct-supply spray units, circulating paint systems and the Graco Hydra-Spray (for spraying paints without the use of atomizing air). In addition, there is a complete selection of spray painting accessories and hoses.

To obtain a free copy, write for Powerflo Catalog "Section A", Gray Company, Inc., 1027 Sibley St., N. E., Minneapolis 13, Minn.

★ ★ ★

How to Clean and Phosphate Metals in One Operation at Low Cost. A 16-page manual covers the what, why, where and how of the steam cleaner phosphatizing process.

The manual discusses the value of phosphatizing, briefly describes methods of application, explains where the steam cleaner method best fits, cites specific installations, gives figures on both installation and operating costs, then concludes with a chapter on what to look for when selecting a steam cleaner for phosphatizing.

To obtain a copy of this manual, write Malsbury Manufacturing Co., Dept. PF, 845 - 92nd Ave., Oakland 3, Calif.

The radial segment construction of the Zip-Tip Buff permits it to perform equally well on flat or contoured surfaces. The cross-cutting movement of the spoke-shaped segments prevent work streaking while it breaks up straight-line patterns on the surface.

- **Zip-Tips are available in a wide variety of all cloth constructions —also combinations of cloth and sisal.**
- **Zip-Tips are made of heavy-duty, bias-cut materials mounted on ventilated steel centers.**
- **Zip-Tips are extra thick and provide wider buff faces with greater compound retention capacity.**
- **Zip-Tips are perfectly balanced —require no raking.**

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FORMAX MFG. CORP.
DETROIT 7, MICHIGAN
"THE FOUR McALEERS"

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Your Name _____ Your Title _____

Company Name _____

Company Address _____

City _____ Zone _____ State _____

Products Manufactured _____ Number of Plant Employees _____

June 1959

products finishing

Circle KEY numbers (NOT PAGE NUMBERS) for more information on items described or advertised in this issue.

1	26	51	76	101	126	151	176	201	226	301-2nd Cov.	347	372	397	422	447	472	497	522	547	572	597	622	647	672	697	722
2	27	52	77	102	127	152	177	202	227	302-3rd Cov.	348	373	398	423	448	473	498	523	548	573	598	623	648	673	698	723
3	28	53	78	103	128	153	178	203	228	303-4th Cov.	349	374	399	424	449	474	499	524	549	574	599	624	649	674	699	724
4	29	54	79	104	129	154	179	204	229	304	350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725
5	30	55	80	105	130	155	180	205	230	305	326	351	376	401	426	451	476	501	526	551	576	601	626	651	676	701	726
6	31	56	81	106	131	156	181	206	231	306	327	352	377	402	427	452	477	502	527	552	577	602	627	652	677	702	727
7	32	57	82	107	132	157	182	207	232	307	328	353	378	403	428	453	478	503	528	553	578	603	628	653	678	703	728
8	33	58	83	108	133	158	183	208	233	308	329	354	379	404	429	454	479	504	529	554	579	604	629	654	679	704	729
9	34	59	84	109	134	159	184	209	234	309	330	355	380	405	430	455	480	505	530	555	580	605	630	655	680	705	730
10	35	60	85	110	135	160	185	210	235	310	331	356	381	406	431	456	481	506	531	556	581	606	631	656	681	706	731
11	36	61	86	111	136	161	186	211	236	311	332	357	382	407	432	457	482	507	532	557	582	607	632	657	682	707	732
12	37	62	87	112	137	162	187	212	237	312	333	358	383	408	433	458	483	508	533	558	583	608	633	658	683	708	733
13	38	63	88	113	138	163	188	213	238	313	334	359	384	409	434	459	484	509	534	559	584	609	634	659	684	709	734
14	39	64	89	114	139	164	189	214	239	314	335	360	385	410	435	460	485	510	535	560	585	610	635	660	685	710	735
15	40	65	90	115	140	165	190	215	240	315	336	361	386	411	436	461	486	511	536	561	586	611	636	661	686	711	736
16	41	66	91	116	141	166	191	216	241	316	337	362	387	412	437	462	487	512	537	562	587	612	637	662	687	712	737
17	42	67	92	117	142	167	192	217	242	317	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
18	43	68	93	118	143	168	193	218	243	318	339	364	389	414	439	464	489	514	539	564	589	614	639	664	689	714	739
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24	49	74	99	124	149	174	199	224	249	324	345	370	395	420	445	470	495	520	545	570	595	620	645	670	695	720	745
25	50	75	100	125	150	175	200	225	250	325	346	371	396	421	446	471	496	521	546	571	596	621	646	671	696	721	746

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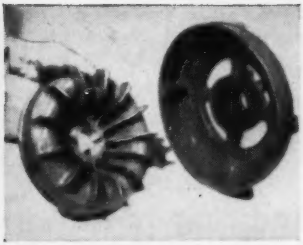

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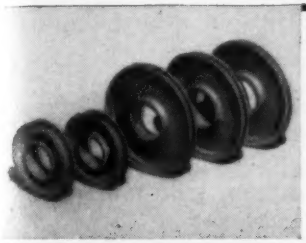

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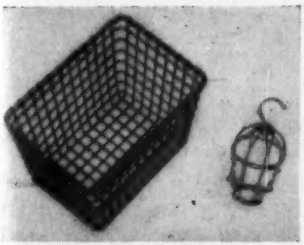

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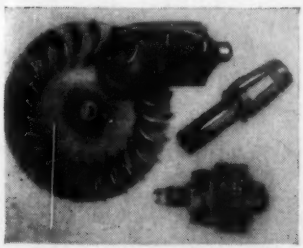

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Finishing Procedures at Guide Lamp

Finishing—from anodizing to hot-dip painting—is an important part of manufacturing at this huge automotive parts plant . . .

By GERARD H. POLL, JR.
Associate Editor

Fifteen miles of overhead conveyors and countless automatic machines help to finish the automotive accessories and trim parts made by Guide Lamp Division of General Motors Corporation in a plant that takes up an area the size of 22 football fields in Anderson, Indiana.

One of the largest finishing processes in this plant, plating zinc die castings, is described in detail beginning on page 138 of this issue.

Other finishing processes in this plant include anodizing aluminum, chromium plating stainless steel parts to match the color of other chromium plated parts; hot-dip painting; and vacuum metallizing.

The finishes produced by these processes protect and decorate the company's many products for civilian and military transportation equipment. Some of Guide's current products are shown on the automobiles on the opposite page.

Anodizing Aluminum

With the appearance of anodized aluminum trim on cars in recent years, Guide Lamp has installed facilities for fabricating and finishing the aluminum trim parts specified by its customers.

Guide Lamp forms its aluminum trim parts from aluminum alloy, buffs as required on automatic and semi-automatic equipment, anodizes in a full-automatic anodizing installation (Fig. 1). Steps in the anodizing process are as follows:

1. Loaders hang parts on the plastisol-coated titanium-tipped aluminum racks of the full-automatic anodizing machine. (This machine's conveyor carries the parts through the entire process, dipping in and out of the various solutions as required, and delivering finished parts.)
2. Soak clean.
3. Spray clean.

4, 5, 6, 7. Three flowing water rinses, one drip-and-drain section.

8. Bright dip in Alchemize aluminum bright dipping solution.
9. Warm-water rinse.
10. Cold-water rinse.
11. Deoxidize in a nitric acid solution.

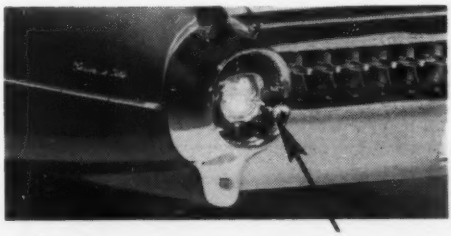
12, 13. Two water rinses.
14. Anodize for 10-12 minutes in a 16-18 per cent sulfuric acid solution that is kept at 68-70 deg. F. by automatic temperature regulators and a cooling unit. Anodic film thickness, two-tenths of a mil for most requirements.
15, 16. Two water rinses.
17. Seal in demineralized water that is heated to approximately 210 deg. F. for 10-12 minutes.
18. Blow off water with hot air.
19. Unload completed parts.

Chromium Plating Stainless Steel

Guide Lamp makes certain specialized parts from various stainless steel alloys—both high nickel and straight chromium, depending upon the forming operations that must be performed. All of these stainless steel parts are chromium plated to

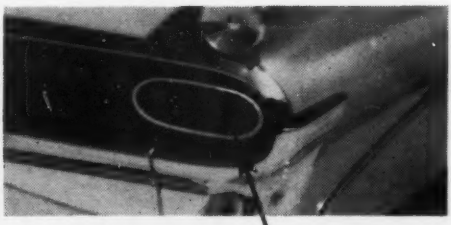
Guide Lamp's Products . . .

The Guide products shown here on Cadillac, Chevrolet and Pontiac automobiles illustrate some of the many finishes applied.



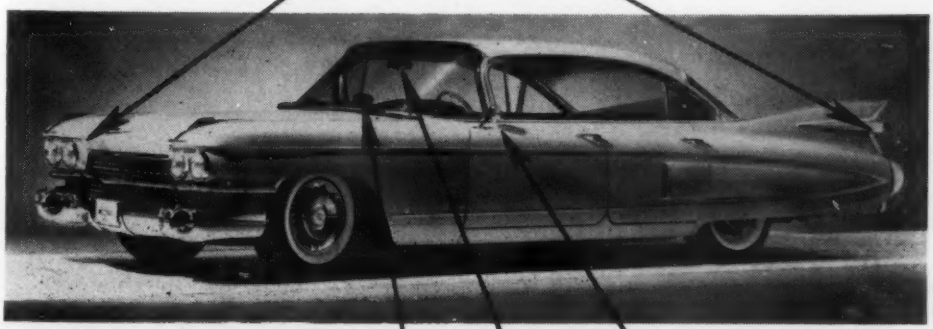
Stainless steel housing for back-up lamp.

Anodized aluminum tail lamp bezel.



Vacuum metallized tail lamp bezel.

Headlamps, tail lamps, parking lamps.



Autronic eye automatic headlamp dimmer. *Inside and outside rear-view mirrors.*

"All stainless steel parts are chromium plated to match other bright parts on the car."

match other bright parts on the car.

Mechanical finishing of the stainless steel parts consists of polishing on abrasive belt machines equipped with 220 to 400 grit belts, then buffing to the finish required on automatic and semi-automatic buffing machines. Some small stainless parts are tumble finished (Fig. 2).

The process for depositing chromium on stainless parts (no underplatings applied) is as follows:

1. Load parts on the automatic plating machine's conveyor. This conveyor carries racks of parts through the entire process.
2. Soak in a detergent solution.
3. Soak in an alkaline cleaner.
4. Spray clean.
5. Direct-current clean.
6. Water rinse.
7. Acid dip.
8. Water rinse.
9. Activate in Northwest AAA-1 solution.

10, 11, 12. Three water rinses,

About Guide Lamp . . .

Guide Lamp Division of General Motors has been a member of the G. M. corporate structure for about 30 years.

The company that eventually became Guide Lamp Division of General Motors began in Cleveland, Ohio, in 1906 as the Guide Motor Lamp Company. Three men — Hugh Monson, William F. Persons and William Bunce—each contributed a third of the company's initial capital, a total of 300 dollars.

The first electric headlamp for automobiles was a product of Guide Lamp. In 1908, Hugh Monson cooperated with T. A. Willard —who later became president of Willard Storage Battery Company —to make the first of many millions of electric headlamps.

Subsequent developments of the company included a ball-and-socket mounting bracket for headlamps; the Guide Ray headlamp, the world's first completely engineered headlamp; the first real two-beam headlamp; the Multibeam headlamp, the principle of which is still used on today's headlamps; the Autronic Eye automatic headlamp dimmer; the T-3 headlamp with a built-in aiming feature; the four-headlamp light system.

Guide Lamp now provides more vehicular light on America's highways than all other lamp manufacturers combined. Guide Lamp's products today include all types of military and civilian vehicular lighting equipment; outside and inside rear-view mirrors; traffic-light viewers; turn-signal switches; Guidex reflex reflectors; stampings; header parts; die castings; molded plastic parts; Autronic-Eye Automatic Headlamp Controls; and T-3 Safety-Aim Headlamps.

The company currently employs about 4,500 men and women in the 1,300,000 square feet of its modern Anderson, Indiana, plant.

two of which are counterflow.
13. Chromium plate in standard chromium plating bath.
14. Reclaim rinse.
15. Spray rinse with demineralized water.
16. Blow off water with hot air.
17. Unload.

Harding Hot-Dip Paint Process

Headlamp bodies—the shell that forms the back of the headlamp—must be protected from weather, salt, calcium chloride, stones, dirt and so on. Guide Lamp applies a long-oil baking-type Gilsonite enamel on these surfaces by the Harding hot-dip painting process.

The heart of this painting installation is a dip tank that is filled with hot paint. This paint is thinned with trichlorethylene rather than conventional paint-thinning solvents. The parts to be painted enter the paint tank hot, are immersed in the heated paint; the paint film "sets up" almost as soon as the parts leave the dip tank, by evaporation of the trichlorethylene solvent from the film.

Advantages of this painting method: comparatively heavy (1-2 mils) film can be applied in single

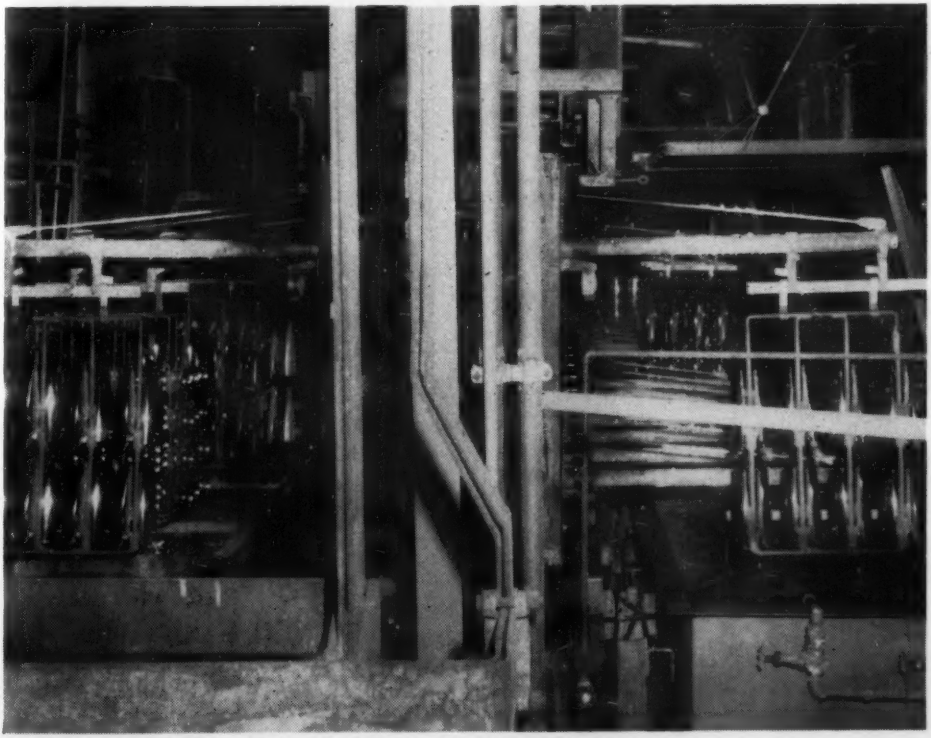


Fig. 1—Tail lamp bezels for Chevrolet station wagons being anodized in Hanson-Van Winkle-Munning full-automatic anodizing machine. Racks are coated with Unichrome 218X plastisol rack coating, have titanium contacts. Chiller controls temperature of solution in anodize tank. Demineralized water in hot-water seal tank is continuously filtered.

"Film uniformity from top to bottom of a vertical surface is excellent . . ."

trip through the dip tank; more uniform film thickness over the part (this is somewhat dependent upon the shape of the part—film uniformity from top to bottom of a vertical surface is excellent, but a horizontal surface would have a slightly thicker film); minimum maintenance of equipment.

The principal maintenance problem is care of the conveyor, which is difficult to lubricate. To alleviate this problem, the ball races of the conveyor are sprayed with molybdenum disulfide lubricant by spray guns similar to those used in applying buffing compound; sections of the conveyor chain are stripped in Kolene molten-salt paint stripper.

Cycles used are determined by condition of the part and type of surface finish desired.

Three conveyors (each approximately 2,000 ft. long) bring parts from the forming presses, and, moving at 14½ to 16 ft./min., carry the parts through the entire hot-dip painting process. Parts hang on the conveyors at 15-inch centers.

Machines for cleaning and painting take a space 160 feet long, 25 feet of which is the hot-dip-painting tank. R. C. Mahon Company installed the prepaint cleaning and metal-preparation machine as well as the drying and baking ovens.

The five-stage cleaning process (Fig. 3) is as follows:

1. Immerse for five minutes in ACP Ridolene 53 solution.
2. Water rinse for one minute (immersion).
3. Phosphatize for three minutes in ACP Granodine 20.
4. Water rinse for 30 seconds.

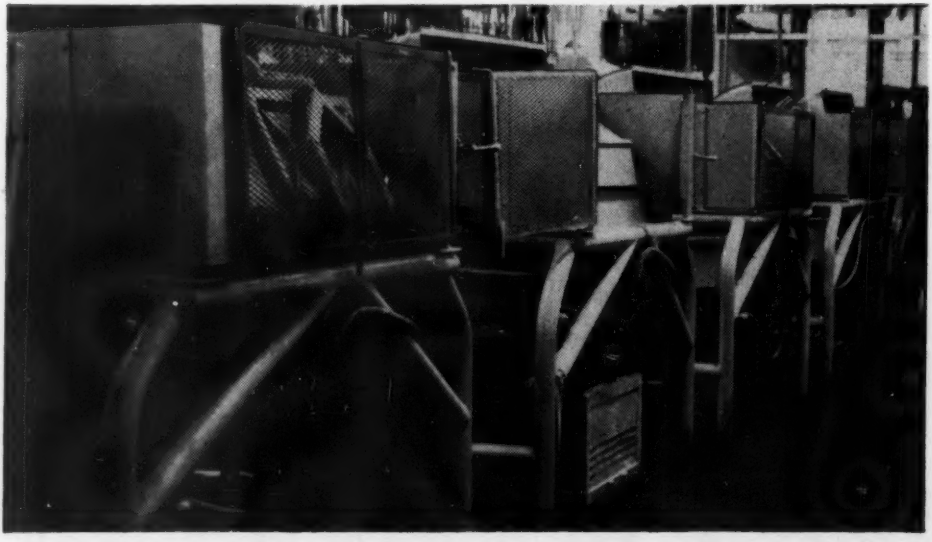


Fig. 2—Many small parts are tumble finished in these conventional barrel finishing machines.

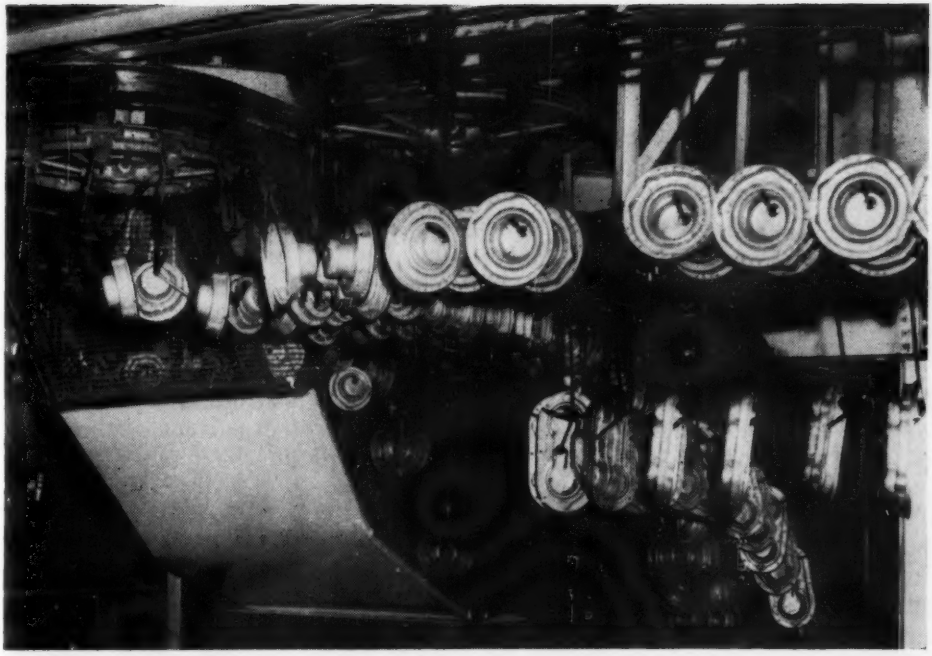


Fig. 3—Headlamp housings enter the first stage of five-stage cleaning machine that removes dirt and applies phosphate coating before paint is applied by Harding hot-dip.

Fig. 4—Painted parts emerge from hot-dip paint tank on left, enter baking oven on right almost immediately. Cuno filters that keep paint clean are in left foreground.

"There is very little space between the dip tank and the baking oven."

5. Rinse for 30 seconds in an acidulated rinse solution.

Parts dry for five minutes in an overhead oven heated to 400 deg. F. This evaporates water from the parts and at the same time heats them before they enter the dip tank. Parts cool to about 160 deg. F. prior to entering the paint, which is heated to 160 deg. F.

Parts emerge from the tank (rate of withdrawal: four ft./min.) and enter the overhead baking oven (Fig. 4). There is very little space between the dip tank and the baking oven. Parts bake for 22-26 minutes at 400 deg. F. Paint fumes are burned. One fan exhausts the entire oven.

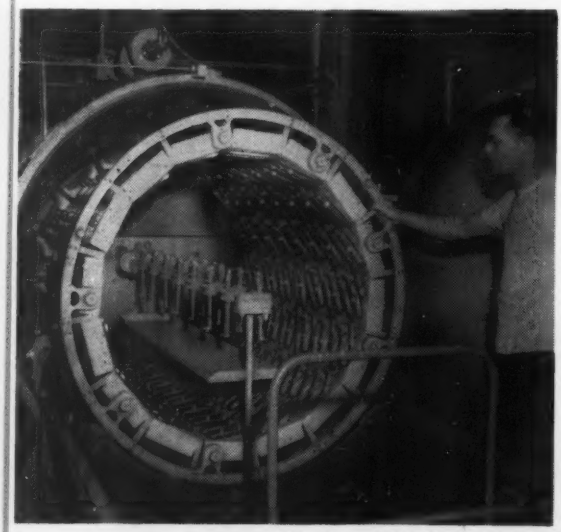


Fig. 5—Operator inserts a rack of Pontiac tail lamp bezels into chamber of NRC vacuum metallizing machine. (Photographs by Guide Lamp Division of General Motors Corporation and PRODUCTS FINISHING.)

Vacuum Metallizing

Certain parts, such as the Pontiac tail lamp bezel, are vacuum metallized plastic. An NRC vacuum coating machine applies the thin film of aluminum that gives these parts their metallic appearance. (Fig. 5).

Steps in the process are as follows:

1. Apply strippable plastic coating to protect surface of the bezel that will not be metallized (the outside surface, or side of the part that will be exposed to weather when the part is in service).
2. Vacuum metallize. The NRC 66-inch cylinder is pumped down after the racks of parts are placed in the chamber. When the pressure is low enough, aluminum, vaporized by a hot electric coil, travels through the vacuum and deposits on the surface of the tail lamp bezels.
3. Spray protective coating of air-dry enamel over the vacuum metallized surface.
4. Remove strippable plastic coating.

A strippable coating also protects the inside of the vacuum metallizing chamber. When cleaning becomes necessary, this coating is removed.

Racks used during the metallizing and related coating operations are stripped in caustic soda solution when necessary.

Turn to page 138 to read about Guide's new procedure for finishing zinc die castings.

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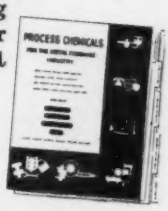

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War on the Pitting Problem . . .

By GERARD H. POLL, JR.
Associate Editor

Corrosion of plated automotive zinc die castings in service is nothing new. It's been with the plater ever since die castings began to trim automobiles. At times it has been worse (during the nickel shortage of the Korean war, for example) and at times, better.

Recent developments in accelerated testing methods (see PRODUCTS FINISHING, April, 1959, pages 22 to 30) and discoveries that

Fig. 1—Housings around the headlamp-parking lamp assembly on this 1959 Oldsmobile are typical of the die castings made and finished at the Guide Lamp Div. of General Motors Corporation, in Anderson, Indiana.

point the way to better techniques, however, show promise of much improved die castings on automobiles produced from now on.

Guide Lamp's Anderson, Indiana, plant is an outstanding example of some of the changes that are taking place—the new approaches that may eventually lead to the promised land: plated parts that will last for the life of the automobile.

In a two-pronged offensive to show its customers a really significant improvement in corrosion resistance of its chromium plated die castings (Fig. 1) Guide has converted to a "duplex" nickel plate. Further, the nickel deposit is about twice as thick (0.001 inch total) as was considered normal a few years ago (0.0005 inch), and the thickness of the chromium deposit that used to be the industry standard has been multiplied many times. Chromium previously deposited for "color" was from 2 to 10 millionths thick. Present experience indicates that 30 millionths of an inch is desirable.

Mark Trook, supervisor of plating engineering at Guide's huge Anderson plant, explains the G. M. Division's thinking on its radical changes: "Our research has shown that 'double nickel' significantly improves resistance to corrosion. At the same time, we have seen encouraging test results on thicker chromium deposits. So we're using both of these approaches to lick this problem. We'll do anything we think will help to preserve the appearance these parts have when they leave our plant. We think no one thing will entirely solve the problem—it's going to be a combination of improvements, and we're confident that we're on the right track."

The following process outline shows exactly how Guide's Anderson plant is now finishing zinc die castings — from flash removal to shipment of the chromium plated parts to assembly plants.

Flash Removal: Abrasive belts mounted on backstand idlers deburr the die castings. 150-grit belts remove heavier burrs, 200-grit belts put on the finishing touches.

Buffing: Guide buffs all parts that are produced in large quantities on automatic (Fig. 2) or semi-auto-

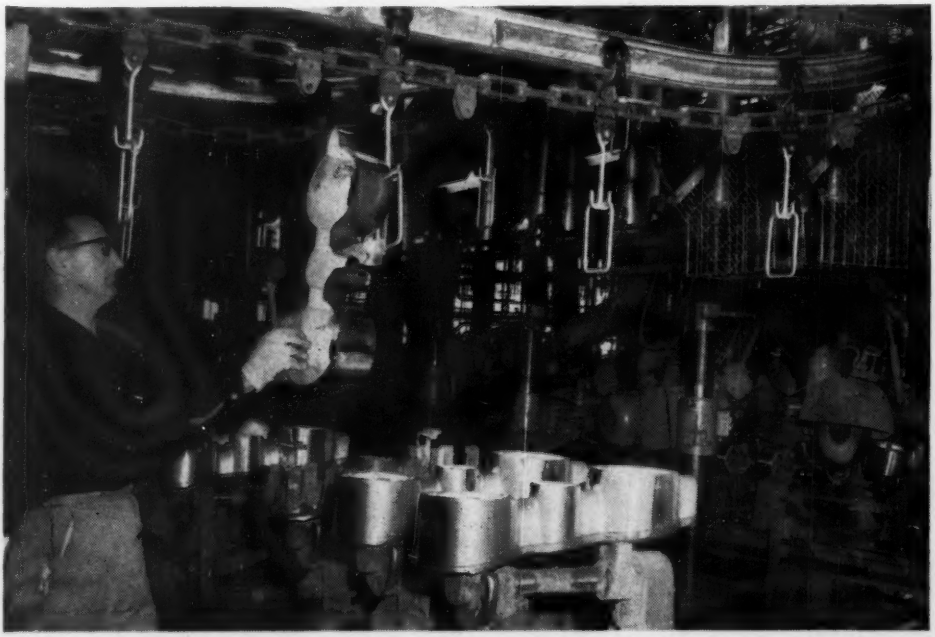
In an all-out move to produce chromium plated zinc die castings that will take the salt treatment from winter streets and still look good at trade-in time, General Motors Division throws away its old rules and applies heavy layers of nickel and chromium . . .

matic buffing machines. On most of the automatic buffing machines, spray guns apply the buffing compound. Bar compound is used on some of the semi-automatic buffing machines. Some small parts are tumble finished in conventional barrel finishing equipment, and some are finished in Grav-I-Flo Spin-Finish loose abrasive finishing machines (Fig. 3).

Plating: The buffed die castings are cleaned, plated and dried in a continuous process that is performed in full-automatic plating machines (Fig. 4). Steps in the cycle are as follows:

1. Soak in detergent solution (7 per cent Northwest LC-1).
2. Spray rinse.
3. Soak in alkaline cleaner.
4. Spray rinse.
5. Reverse-current clean.
6. Soak rinse.
7. Acid dip.
8. Rinse.
9. Copper strike.
10. Cyanide copper plate. (Deposit thickness, six to eight tenths of a mil. High-speed Lea-Ronal solution. Solution is filtered continuously (two complete turnovers hourly).
11. Rinse (copper reclaimed from this rinse).
12. Spray rinse.
13. Reverse-current clean.
14. Spray rinse.
15. Acid dip.
16. Nickel plate in Harshaw Perflow. (Racks enter and leave tank with current on. Two-thirds of

Fig. 2—Operator removes zinc die cast Oldsmobile headlamp-parking-lamp housing from a 67-foot straightline automatic buffing machine. Rectangular-shaped automatic has 32 heads, moves at 100 in./min. Conveyor takes buffed parts to plating machine.



"The most interesting aspects of this plating process are the use of the heavy double-nickel plate and the thicker chromium deposit."

the total nickel deposit (approximately 0.001 inch) is applied in this step. Continuous filtration.)
17. Spray rinse.
18. Nickel plate in Harshaw Perglow. (Racks enter the tank with current on, but leave without current. Continuous filtration.)
19. Dragout rinse (nickel is reclaimed from this rinse tank.)
20, 21, 22. Water rinses.
23. Chromium plate. (Current on as racks enter the tank—low-current activation. Total thickness objective, 30 millionths of an inch minimum.)
24. Immersion rinse. (Chromium is reclaimed from this rinse tank).
25, 26. Water rinses—both counterflow.
27. Hot demineralized air-agitated water rinse (Fig. 6). (Serves two purposes: minimizes water-staining of parts, improves adhesion of any decorative paint that might be applied over the plate.)
28. Hot-air blow-off.

The most interesting aspects of this plating process are the use of the heavy double-nickel plate and the thick chromium deposit.

As can be noted from the cycle described above, nickel is plated in two steps. In the first of these steps, about two-thirds of the total nickel thickness, (approximately one mil) is deposited from a Harshaw Perflow nickel plating solution. This solution produces a semi-bright sulfur-free deposit that has the property of "leveling" or filling in small scratches left by buffing.

The primary additives in this bath are a dry addition agent that causes the leveling action, and an additive used to control pitting by lowering surface tension of the plating solution.

Fig. 3—Some small die castings are polished in this Grav-I-Flo Spin Finish loose abrasive finishing machine. Machine has four spindles. Special fixtures attach the parts to these spindles, which then dip down into a mass of loose abrasive media in a large tub. The spindles are mounted on a revolving plate. This plate forces the fixtured parts to travel through the mass of abrasive, which remains stationary. At the same time the spindles are moving through the abrasives, the spindles themselves rotate—three minutes in each direction. Parts that can be finished in this machine are limited by size and shape. Parts must be such that fixturing is possible.

With the smooth, semi-bright surface left by the Perflow bath, the die castings proceed to the Perglow bath, which deposits the remaining one-third of the nickel. This bath plates a full-bright coating of nickel to create a highly reflective surface for subsequent deposition of chromium. The Perglow deposit also has leveling properties and has excellent adherence to the semi-bright deposit.

Three addition agents are basic to the Perglow bath: one is a brightener; another is a carrying agent for the brightener; and the last is an anti-pitter that lowers surface tension.

The combined deposit produced by these two plating baths is bright and reflective, a good surface for subsequent deposition of chromium. In addition to the brightness and reflectivity produced by the duplex deposit, the two-step system produces deposits which appear to have significantly better corrosion resistance than an equivalent thickness of nickel produced from a single nickel solution.

Today Guide Lamp's deposit of chromium is several times

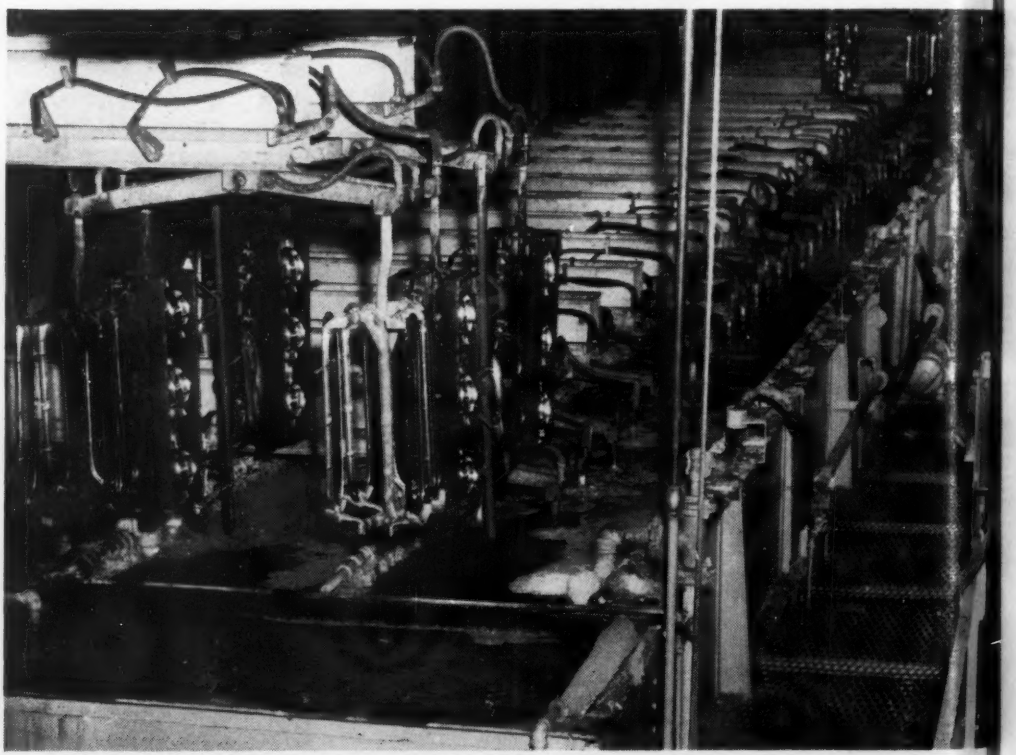


Fig. 4—Die castings being plated in a full-automatic plating machine. Copper plated parts in foreground are moving toward the nickel tank, located adjacent to the water rinse. This plating machine is 160 feet long, has 20,000-gallon copper tank, 19,300-gallon nickel tank, 5,200-gallon chromium tank. The nickel plate is applied in two steps.

Fig. 5 — Bright chromium plated zinc die castings rise from the final rinse tank of the long fully automatic plating machine.

heavier than the 0.010 mil thickness that most specs require. This is a result of recent research which seems to refute the long-accepted view that chromium plate is bright and hard but not much of a corrosion preventive. The theory always has been that chromium plate is so porous that corrosive liquids travel right through and are stopped only by the underplates. Now there seems to be evidence that a heavier chromium plate also helps to prevent corrosion of die castings. Guide plates its chromium from a standard chromic acid—sulfate chromium plating bath.

ACKNOWLEDGMENT

The author acknowledges with sincere thanks the assistance and cooperation of the following staff members of Guide Lamp Division in securing the information contained in this article: Frank J. Rada, director of facilities and services, Mark M. Trook, supervisor of plating engineering, Harry E. Welker, senior process engineer, and Stafford Zerr, process engineer.

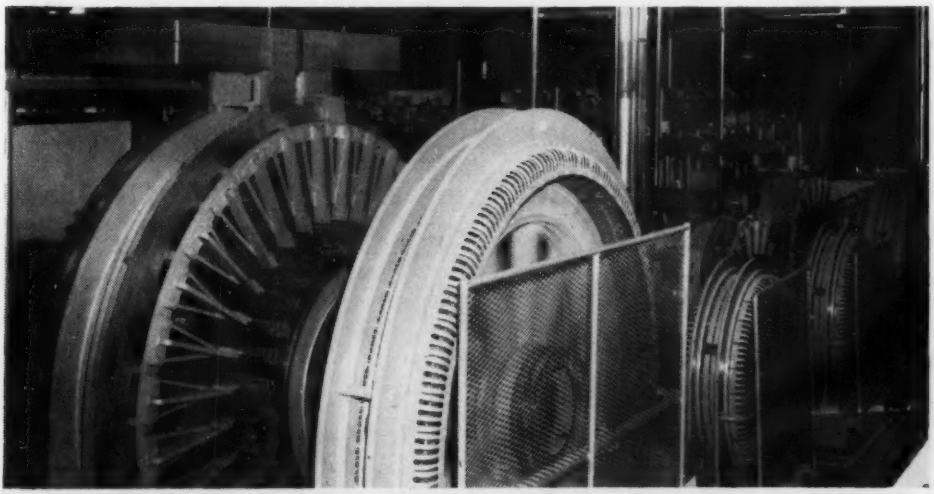


Fig. 6—These Chandeysson generators supply direct current used in plating die castings. Generators that supply current for chromium and nickel tanks are rated at 15,000 amps., nine volts; and 10,000 amps., nine volts. Those for copper tanks are each 7,500 amps., six volts. (Photos by Guide Lamp Div., General Motors Corp. and PRODUCTS FINISHING.)

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Silicones in Industrial Finishes

By ROBERT C. HEDLUND
Supervisor of Coatings Laboratory
Product Engineering Laboratories
Dow Corning Corporation

Silicone coatings have become well known for their resistance to heat and corrosion. As coatings for smokestacks, mufflers and similar equipment, they have proved their value and are considered the standard by which other heat- and corrosion-resistant coatings are judged.

Silicone finishes also have considerable utility as coatings for manufactured products. They have enabled manufacturers of stoves and space heaters to replace dull browns and blacks with bright colors without sacrificing performance or serviceability. In these applications the silicone coating is often an important factor in the product design.

On some products reduced fabrication costs have been realized through use of a heat-resistant silicone coating.

Silicone enamels provide finishes that approach the heat resistance of porcelain. Although the major use has been on heating equipment, silicone modified finishes have given excellent performance on refrigerator cabinets, bathtubs, and similar products where water and soap resistance is of utmost importance.

Silicone coatings also have excellent resistance to weathering, water, sunlight and low temperatures. These important properties can be formulated into silicone-organic enamels for appliances and equipment requiring exterior durability.

Types of Silicone Coatings

As used today, the term "silicone paint" covers a wide variety of coatings and finishes. In heat-resistant coatings, silicone resins alone may be used for the paint vehicle, or they may be blended with various organic resins. The silicone content may be varied in each formulation to give optimum heat or weathering properties.

In many cases, trace amounts of silicone are added to organic finishes to give better flow or prevent pigment separation. These coatings are often labeled "siliconized" paints. Such "siliconized" paints are predominantly organic in nature and do not exhibit the heat resistance and weathering properties of coatings containing substantial amounts of silicone resins.

Copolymers of silicone resins with various organic resins are the newest types of silicone-based resins for use in product finishes. Combining the best properties of each resin, these copolymers enable the resin chemist to bring together many organic

ROBERT C. HEDLUND has been supervisor of the Coating Laboratory —Product Engineering Laboratories at Dow Corning Corporation since 1949. In this capacity he has supervised the development of many silicone resins designed as coatings and vehicles for the paint industry.

Mr. Hedlund graduated from Michigan State University with a B.S. Ch. E. degree. He was associated with General Motors Corporation in the metallurgical laboratories. He joined Dow Corning in 1947.

Mr. Hedlund is a member of A.I.Ch.E. and is the author of several articles dealing with silicone resins for the coatings industry.

resins and silicones which otherwise are incompatible.

Applications

The trend to light-colored, natural-finished furniture has created a demand for home heaters that complement such furniture. To meet this demand a number of leading space heater manufacturers now offer light, pastel colored coatings on their products. Such coatings have been achieved by the use of silicone-based finishes.

Silicone coatings have been formulated to withstand 500 consecutive hours at a surface temperature of 450 deg. F. Under the same test condition, light-colored high-temperature coatings based on organic resins discolor, crack and flake. The modified silicone coating shows no deterioration with aging.

A modified silicone aluminum coating has also been applied to the combustion chambers of home heaters. Able to withstand temperatures in the range of 600 to 900 deg. F., the silicone finish eliminates the smoking of heat chambers when they are first fired in the user's home.

Another volume application for silicone finishes is for use on home

Fig. 1—Chrome trim and a white silicone enamel are used by Calcinator Corporation on deluxe units designed for use in the kitchen.

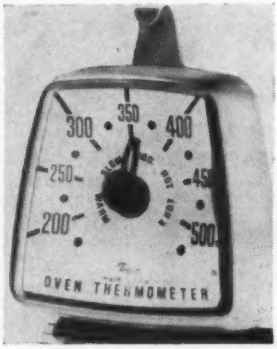

Fig. 2 — Taylor Instrument Company prepaints the sheet metal stock used in making colorful oven thermometers. The paints are made in beige, red and green.

incinerators, a relatively new and popular home appliance. One of the pioneer manufacturers of this product is the Calcinator Corporation of Bay City, Michigan.

Early in 1952 Calcinator designers replaced the organic grey wrinkle finish on its standard model with a metallic-brown modified silicone. The original silicone finished units still look factory fresh and are expected to retain this "like new" appearance through many more years of service, even though combustion chamber temperatures occasionally reach 750 deg. F. Calcinator's most recent model is chrome trimmed and finished with white silicone enamel. (Fig. 1).

Silicone-based enamels have been applied to bathtubs and commercial refrigerator cabinets where resistance to water, acid, detergents and abrasion are important. The baked silicone enamel applied to bathtubs provides a high gloss and remains flexible enough to withstand handling without cracking and chipping.

On commercial refrigerator cabinets, the modified silicone enamels provide a tough moisture- and acid-resistant coating. After several years of service, these cabinets show excellent resistance to foods, low temperatures and severe moisture.

Silicone-based enamels have also been applied to flat steel sheets and then fabricated into the final product (Fig. 2). At the present time the distensibility of silicone enamels is not equal to the best organic coatings, but satisfactory commercial coatings are available where moderate forming is required.

Formulating Silicone Coatings

Several silicone resins are available to paint manufacturers for formulating silicone-based finishes. These include cold-blending types for use with finished organic resins and intermediates for cooking with organic resin raw materials. In blends with organic resins, the choice of resins by the paint chemist is a most important factor in designing a product finish. This is especially true in silicone-modified coatings where cost is an important factor. By judicious selection of the organic and silicone components, excellent film properties can be formulated into a coating.

In coatings where heat resistance is important, small amounts of organic resins are included to give improved hardness and curing properties. In other formulations where extreme temperature conditions are not a problem, larger amounts of organic resins can be used.

The more important silicone-based enamels are those based on silicones modified with alkyds and polyesters. These coatings combine toughness and adhesion with resistance to heat: 500 deg. F. and above.

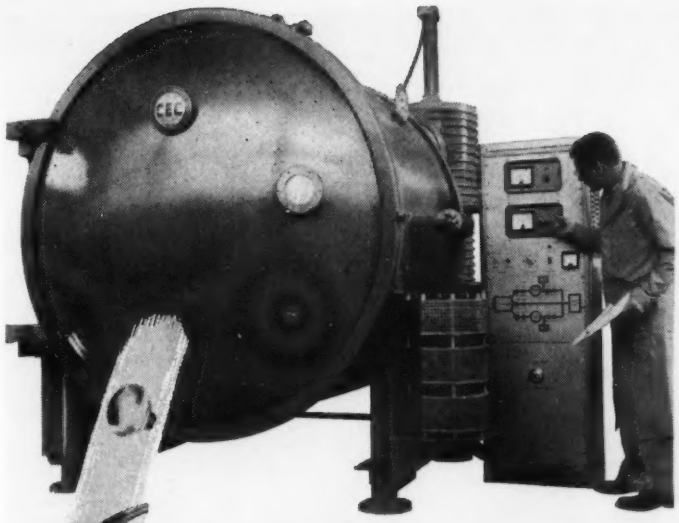

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Table 1

PROPERTIES OF SILICONE-ALKYD BLENDS IN WHITE ENAMELS

Alkyd Resin	% DC 840 Silicone	Gloss Initial	Heat Aged 16 Hours 350° F.	375° F.	400° F.	Color 400° F.
Baking-Type Duraplex ND-76	0	86	66	54	25	Tan
	25	87	73	56	57	Lt. Tan
	50	85	77	77	67	White
	75	83	79	79	79	White

The properties of the silicone-alkyd coating depend on the type of alkyd (baking or air dry) and the silicone content. The effect of adding a silicone resin to a baking alkyd enamel is shown in Table 1. For a significant improvement in heat resistance, a high silicone content is usually necessary. The addition of 25 per cent silicone resin gives a noticeable increase in gloss retention, but 50 per cent silicone is necessary for good color retention in white enamels. In dark colors or aluminum coatings, less silicone is usually required.

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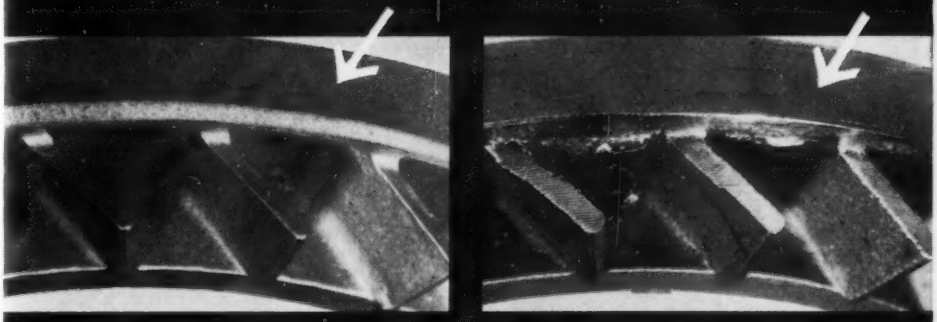

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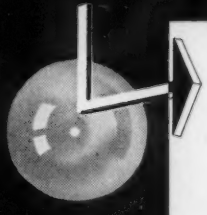

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Table 2

PROPERTIES OF SILICONE-COPOLYMERS IN WHITE ENAMELS

Resin	% Silicone	Gloss—Heat Aged 16 Hours				Color		% Adhesion
		Initial	300° F.	400° F.	500° F.	400° F.	500° F.	500° F.
Alkyd-melamine	0	96	95	90	3	Tan	Brown	0
Silicone-alkyd	25	100	100	98	48	White	Tan	100
Silicone-alkyd	50	100	100	100	68	White	White	100

cellulose, they are relatively non-smoking and have been used on furnace combustion chambers to prevent rusting prior to use.

In lacquers where resistance to gasoline or other solvents is necessary, nitrocellulose is often used in combination with silicone resins.

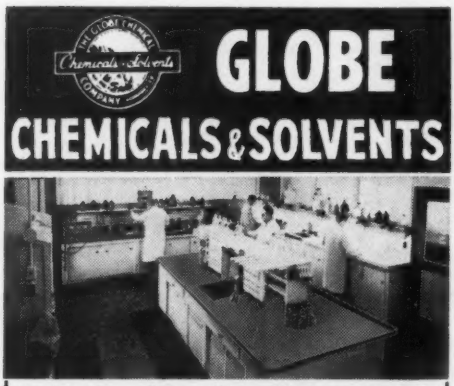
Other organic resins such as acrylics and cellulose butyrate have excellent color retention and are used with silicones where good weather durability is important.

Lacquers containing silicone resins and ethyl cellulose have been exposed on aluminum for four years and show excellent resistance to pitting and oxidation.

Copolymers

Silicone copolymers are becoming more important in the formulation of industrial coatings. The introduction of silicone intermediates has made it possible to produce many new copolymers which have excellent physical properties. With these intermediates, copolymers of silicones with alkyds, polyesters, epoxies, phenolics, amine-formaldehyde resins, and many other organic resins have been prepared. New developments in these resins appear useful in several applications where porcelain enamel is presently used.

The effect of silicone content on the heat resistance of silicone-alkyd copolymers is shown in Table 2. Here we see that coatings containing 25 per cent silicone maintain excellent color and gloss properties up to 400 deg. F. Copolymers of this type are flexible and have excellent



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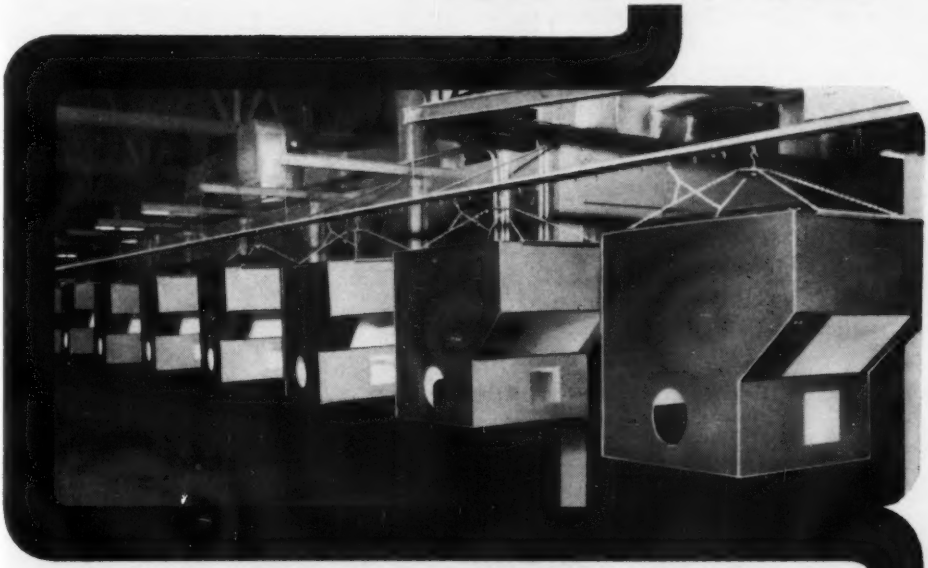

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adhesion to steel. Copolymers containing 50 per cent silicone have excellent physical properties and color retention at temperatures as high as 500 deg. F. In general, silicone-alkyd copolymers have better heat stability than silicone-organic resin blends of equal silicone content.

Marine finishes and trim enamels also appear to be major applications for silicone copolymers. Copolymers of silicones with alkyds maintain excellent gloss upon weathering and have good color retention in light pastel colors.

Table 3 shows the effect of silicone content upon weathering of a low-bake alkyd enamel. The gloss retention is greatly improved at a silicone content of 30 per cent. Silicone-alkyd copolymers such as these have been exposed on test racks and on plant equipment for over five years. Such paints had excellent color retention and chalk resistance during this exposure.

Copolymers of silicones with epoxy resins represent another class of new developments in silicone-modified coatings. These copolymers show promise where a combination of chemical resistance and heat resistance is required. New formulations cured with silicone amines show improved resist-

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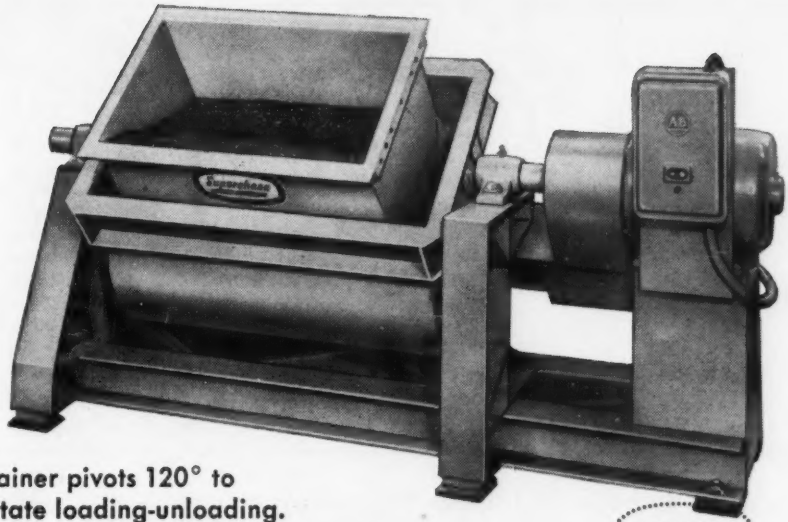

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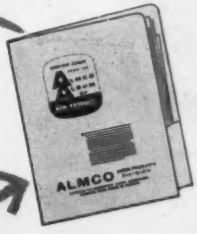

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Table 3

EFFECT OF WEATHERING ON
LOW BAKE SILICONE ENAMELS

Resin	% Silicone	Gloss Initial	After 3 yrs. in Michigan	Chalking
Silicone-alkyd	0	85	23	Heavy
Copolymer	2.5	90	39	Medium
(Short-Oil Soya)	5	85	46	Slight
	10	87	54	None
	30	85	63	None

Note: All enamels cured 30 minutes at 275 deg. F.
Resin Composition: 90% Silicone-alkyd copolymer
10% Melamine-formaldehyde resin

ance to water and acid and appear useful as tank linings and coatings for pipes.

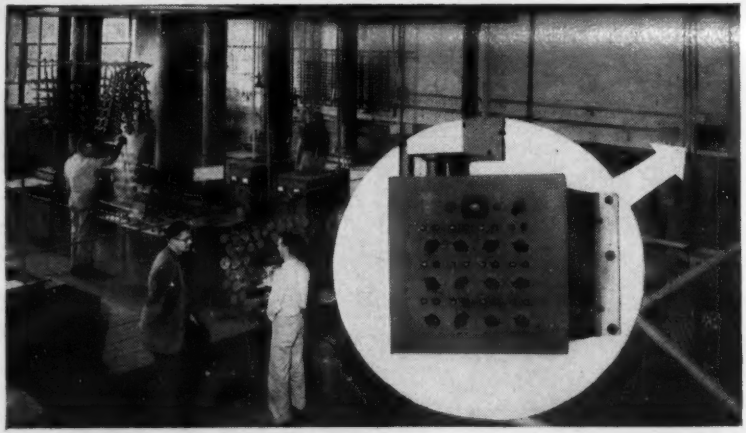
Processing

Silicone-based enamels have been applied satisfactorily by most of the conventional coating methods. Spraying is the usual method of application (Fig. 3); however, electrostatic spraying may be used successfully with many coatings. Dip coating and roller coating also have been used successfully. Silicone enamels are often applied at relatively low viscosity and low spraying pressure. At low viscosities, solids content of the film is usually high, thus giving adequate film thickness with one or two coats.

Fig. 3—Silicone coatings are applied by conventional spraying equipment and cured in conveyorized ovens at temperatures of 350 to 450 deg. F. (Photographs courtesy Dow Corning Corporation, Midland, Michigan.)

Silicone-based coatings have good adhesion to steel and superior adhesion to aluminum when compared with alkyds and similar coatings. Phosphate coatings can be used beneath silicone-based coatings to obtain superior corrosion resistance. A phosphate surface preparation and one coat of a silicone coating is often adequate as a complete protective finish. In severe corrosive environments an anti-corrosive primer should be applied over the phosphate metal conditioner.

For high-temperature service, it is important to thoroughly evaluate the adhesion properties of the phosphate surface coating. Some surface conditioners have very poor heat



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stability while others have excellent heat resistance at temperatures to 500 deg. F. The paint manufacturer and the manufacturer of phosphate coatings should be consulted for their recommendations.

As in all coatings, film thickness is important. For most applications a two-mil coating system is satisfactory for interior use. Where a product is exposed to exterior weathering or chemical atmosphere, a four- to five-mil primer-top coat system should be employed.

Summary

Silicone-based coatings have been used for several years as product finishes where heat resistance, weathering, or moisture resistance are important. Four types of coatings are generally used as product finishes:

1. "Siliconized" paints containing small amounts of silicone additives for better coating properties.
2. Heat-resistant coatings for use on space heaters, barbecues and other products operating at high temperatures.
3. Moisture-resistant coatings for appliances, refrigeration equipment and building products.
4. Weather-resistant enamels that maintain excellent gloss and resist fading when exposed to sunlight and rain.

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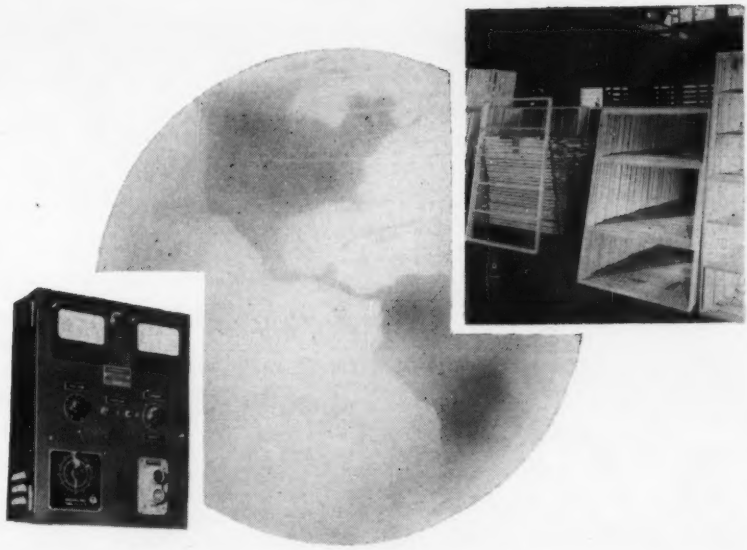

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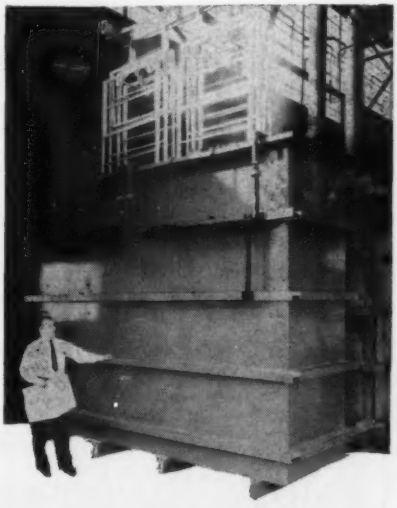

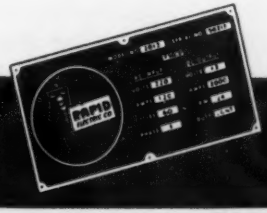

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M. A. Glaser, *Product Engineering*, February (1950).

M. A. Glaser, E. Miller, *Product Engineering*, March (1953).

L. F. Stebleton, *Materials and Methods*, February (1957).

S. A. Brady, J. C. Johnson, J. D. Lyons, *Paint and Varnish Production*, 48, January (1958).

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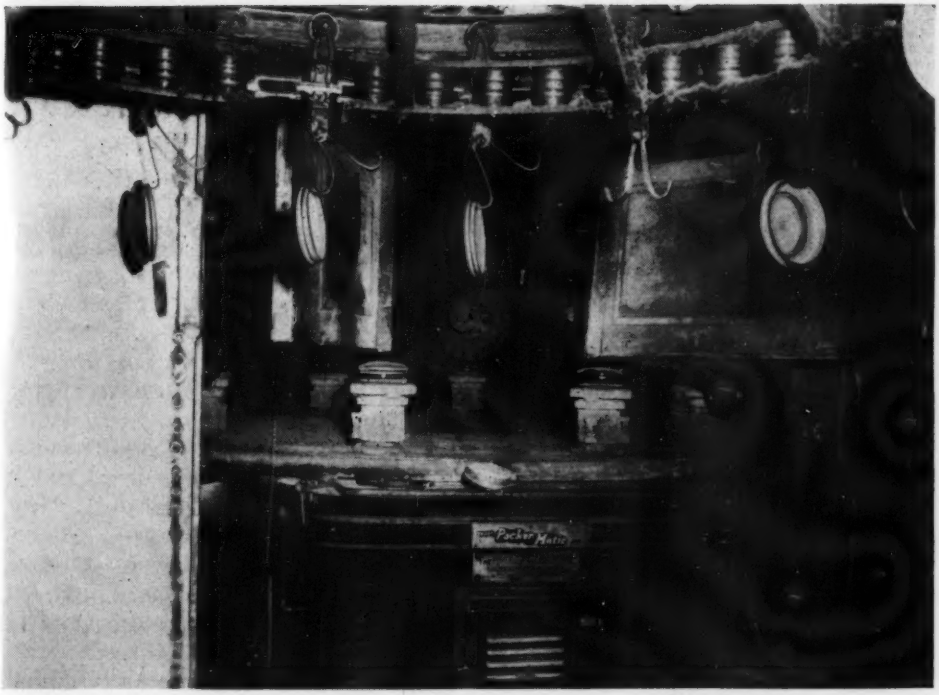

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Breakthrough in Vacuum Metallizing . . .

A Vacuum-Deposited Coating that Withstands Exterior Exposure

National Research Corporation has developed a process and equipment for producing thick protective aluminum films by vacuum coating methods. Research on the process is now essentially complete, making it possible to produce a tightly adherent ductile nonporous film with properly oriented crystal structure, the developer reports.

Fig. 1—Aluminum coated and polished automotive trim. The bottom part shown has been bright anodized in very pale gold. The dart-shaped trim immediately above this part has been bright anodized to a pastel blue color.

Vacuum metallizing as performed on decorative products produces a metal film of the order of only a few microinches in thickness. For corrosion protection, however, vacuum-deposited metal coatings 0.5 to 1.0 mils in thickness are required. The aluminum film produced by the new process can be anodized and dyed by standard commercial processes.

Metals which have been successfully vacuum metallized with aluminum by this method, according to National Research Corporation, include high tensile steels, cold rolled steels, hot rolled steels, aluminum die castings, aluminum forgings, and titanium. Additional research work is currently in progress to develop vacuum-deposited corrosion resistant aluminum films on aluminum alloy castings and forgings and magnesium.

The corrosion resistant thick-film aluminum coatings are expected to be most useful in the following areas: aircraft and missile high-tensile-steel parts; metallized steel strip with a ductile aluminum coating; and corrosion protection of mild steel parts (nuts, bolts and washers) and steel and aluminum formed

Recently developed process for depositing a thick film of aluminum has applications in automotive, aircraft, and marine industries . . .

shapes (for parts such as automotive trim).

Properties of Aluminum Coatings

Corrosion resistant coatings applied by vacuum metallizing should be adherent and non-porous. In addition, it is desirable to be able to form coated products. Ductility of the coatings should be comparable to that of the material they are designed to protect.

Protective coatings of aluminum deposited by the N. R. C. process exhibit excellent adherence and ductility and have the corrosion resistance required for aircraft and missile applications, N. R. C. reports. Samples of 1/16-inch mild steel sheet have been coated with approximately 0.0015 inch of aluminum and bent 180 degrees over a one-inch-diameter mandrel. At a magnification of 10 times, no cracking or lifting of the coating was observed when bent either in tension or compression.

Both mild steel and high-tensile-steel bolts have been coated with aluminum and tested by immersion in a three per cent sodium chloride solution. After a standard 96-hour immersion test, less than 0.02 milligram dissolved iron was noted in 100 ml. of solution. A corrosion rate of approximately 0.003 mils penetration per year is predicted.

Specimens have been tested under

Fig. 2—National Research Corporation Vice Presidents Frederick H. Greene, Jr., commercial development, and Robert A. Stauffer, research, examine thick-film aluminum coated and polished automobile exterior trim, and household appliance components which are aluminum coated. Some parts are anodized and dyed in various shades and colors from pastels to darks. Parts shown: aircraft fasteners, bolts and washers, marine hardware.

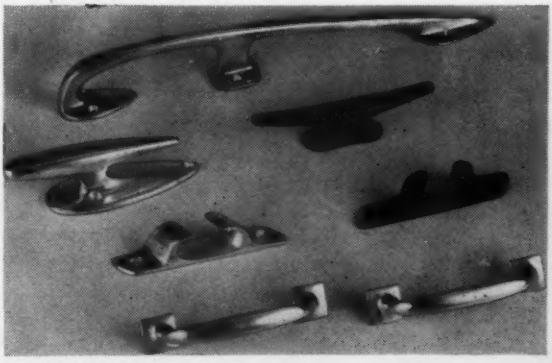

Fig. 3—Top five components are marine hardware with two at right anodized and dyed dark blue. Lower two parts are drawer pulls. All components are aluminum die castings of a standard alloy which is difficult to anodize and color. Some uncoated aluminum alloy parts will corrode in salt water.

"One bumper guard has been in use over a winter season with no observable attack."

20 per cent salt spray and salt fog corrosion conditions by a major aircraft company whose specifications require that material withstand attack for 96 hours. Specimens coated with 0.5 to 1 mil of aluminum withstood attack for as long as 600 hours. Specimens coated with about two mils of aluminum withstood attack for as long as 1600 hours.

Hot-rolled steel washers were coated with various thicknesses of aluminum and subjected to tap water corrosion tests (tap water can be very corrosive under certain conditions). Washers coated with ¼ mil of aluminum showed rust stains in 24 hours. Those coated with ½ mil aluminum showed rust stains in 48 hours. Those coated with one mil of aluminum did not stain until after 100 hours exposure.

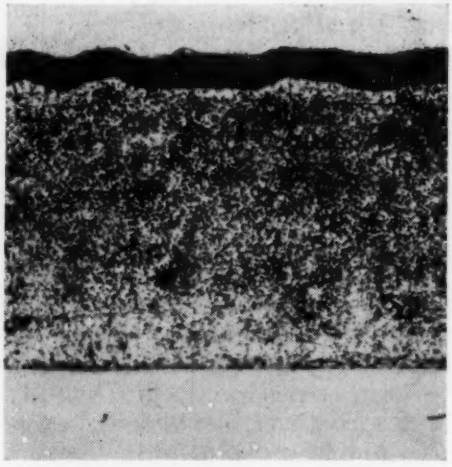

Fig. 4—Cross section of anodized-aluminum coated mild steel. Magnification, 500 X. Etchant, 1 per cent hydrofluoric acid. Note: Black part is anodized surface of the aluminum interface. (Photos courtesy of the National Research Corp., Cambridge 42, Mass.)

A variety of automotive trim samples—both formed steel and die cast aluminum — have also been vacuum coated with aluminum. Performance of these samples appears to be quite satisfactory. One bumper guard has been in use over a winter season with no observable attack.

ACKNOWLEDGMENT

The information contained in this article is based on a report submitted by Molesworth Associates, Boston 8, Mass., on behalf of National Research Corp., Cambridge, Massachusetts.

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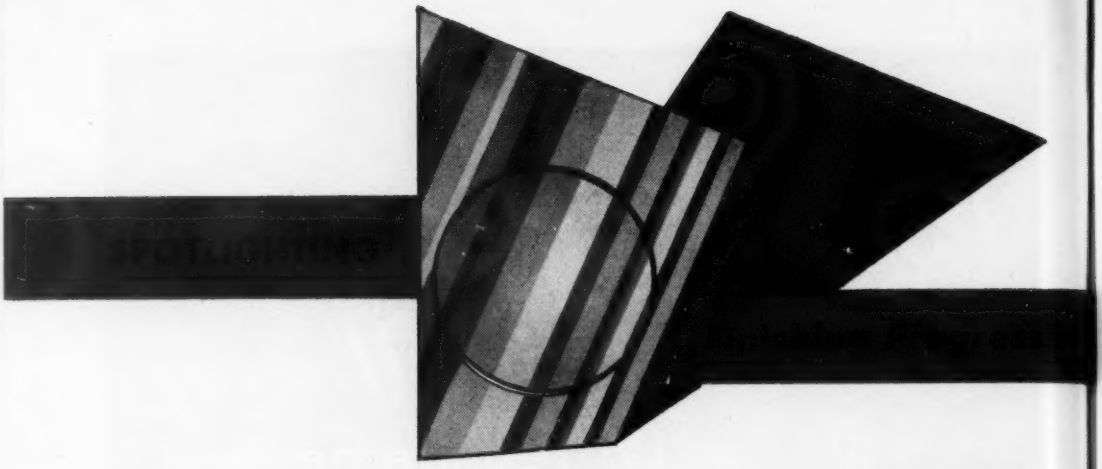

Developments in Finishing Zirconium

Zirconium, free from hafnium, has a low neutron capture, making it useful as a protective "can" for uranium fuel elements[1]. Like stainless steel, a thin film forms in hot water, acting as protection against corrosion. This film is stable for several years, eventually flaking off. The presence of nitrogen promotes flaking, and costly manufacturing techniques are necessary to keep nitrogen out of the metal. An alloy of zirconium with 1.5 per cent tin, 0.1 iron, 0.1 chromium and 0.05 nickel (Zircaloy 2) is reported to be the only alloy (thus far discovered) with corrosion properties superior to that of pure zirconium. However Misch and Gunzel[2] report that an alloy of zirconium containing 2.5 per cent tin (Zircaloy 1) showed superior corrosion resistance compared with pure zirconium at 662 deg. F.

Dr. Nelson F. Murphy
Research Professor of Chemical Engineering, Virginia Polytechnic Institute

Zirconium also absorbs oxygen and, at temperatures of 932 deg. F. or higher, as in molten metals and fused salts, this metal can remove oxygen from its compounds. This oxygen then diffuses into the interior of the metal, seriously affecting the mechanical properties.

Zirconium metal shows excellent resistance to corrosion by chemicals[4]. Early samples of the metal contained carbon in amounts sufficient to result in poor corrosion resistance. The high purity, arc-melted metal available today is resistant to most acids and alkalies, being attacked by 75-80 per cent hot

(1) The Australasian Manufacturer, pp. 52-58, May 10, 1958.
(2) Misch, R. D., and F. H. Gunzel, Jr., J. Electrochemical Society, *106*, 15 (1959).
(3) Whitwham, D., J. Boghen and J. Herenguel, Rev. Aluminum, *34*, 611-623 (June 1957).
(4) "Facts About Zirconium," Carborundum Metals Co. Inc., Akron, N. Y.

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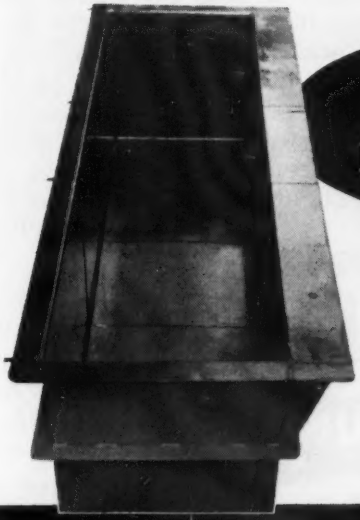

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sulfuric acid. In aqua regia, the metal behaves erratically. In high-temperature water and molten metals it is resistant to attack.

Cleaning and Pickling

Heavy oxide coatings which are formed during hot working must be removed by sand blasting or grinding. Thin oxide coatings, such as are formed during annealing at low temperatures, are removed by acid pickling in a bath of equal parts of nitric acid and water to which is added about 5 per cent of hydrofluoric acid. Too much hydrofluoric acid can cause pitting. It is desirable to keep the nitrate ion in excess[5]. The fluoride ion may be added as ammonium fluoride, for example. The solution of 20 gm. ammonium fluoride in 500 ml. water has been used to pickle the surface of "crystal bar." The action of the mixture is improved by heating. The surface should not be allowed to dry before rinsing, since fluoride salts may be left on the surface

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(5) Misch, R. D., "Anodizing As A Means of Evaluating The Corrosion Resistance of Zirconium and Zirconium Alloys," ANL 5229, Office of Technical Service, Washington, D. C., December, 1953.

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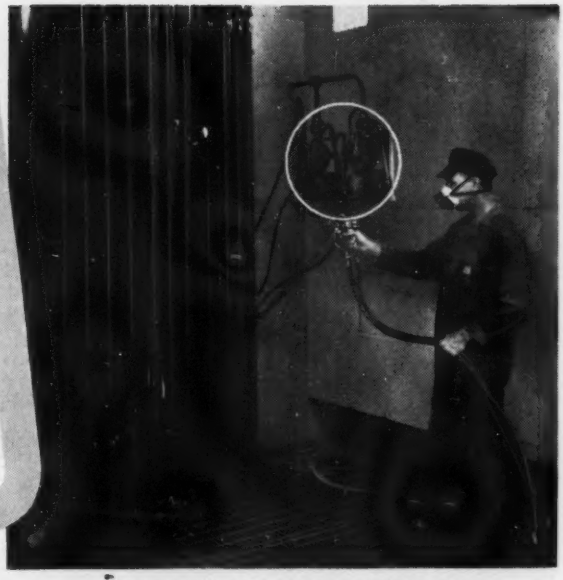

(Photo courtesy General Electric Company)

Whether you are painting large units such as the transformer tanks shown above or any of a variety of smaller industrial products, you can be sure of getting the same advantages with the Spee-Flo hot spray method of finishing. Controlled hot spray means low, uniform viscosity—regardless of weather. This results in reduced overspray, faster application, and up to ⅓ savings in material. Other advantages include better coverage, faster dry, and elimination of runs and sags. If your job requires better finishing at the lowest possible cost, you'll want all the facts on Spee-Flo hot spray systems.

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and interfere with subsequent treatments.

Electropolishing

Electropolishing zirconium has been reported as an excellent surface preparation for anodizing. This treatment is also used for preparing specimens for metallographic examination[6]. The solution consists of 1000 ml. of glacial acetic acid, 50 ml. perchloric acid (density 1.59). This mixture is not hazardous if properly refrigerated and if no contact with porous materials is permitted[7]. Optimum operating conditions are 800 to 1000 a.s.f. at 60 volts, 30 to 60 seconds of electrolysis with rapid agitation of the anode. The electrolyte is cooled by running tap water so that the temperature will not fall below 60 deg. F. Better polishing is achieved if the current is interrupted every 10 seconds and the specimen allowed to cool for one minute.

(6) Jacquet, P. A., Proc. First World Metallurgical Congress, Amer. Soc. for Metals, pp. 732-751 (1951); Metallurgia, *42*, 268-270 (October, 1950).

(7) Jacquet, P. A., Metal Finishing, *47*, 62 (November 1949).

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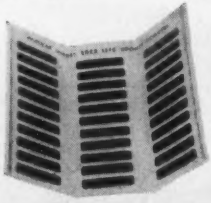

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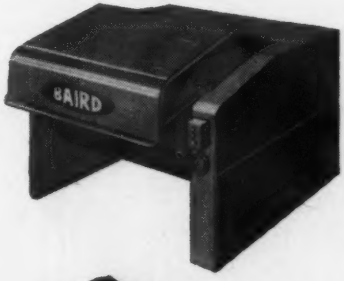

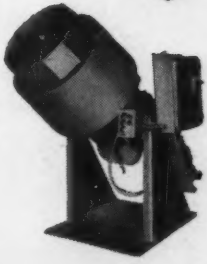

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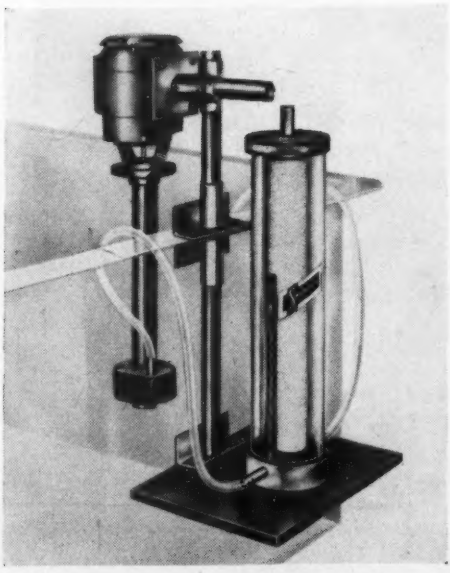
A sump pump filter with detachable filter chamber has been developed by Sethco Manufacturing Corp.

In the electroplating industry the pump and filter may be used by rotating the sump pump while having a filter chamber of the correct size attached to each plating tank; by rotating the filter chamber, using an individual sump pump in each tank; as a sump pump-filter combination for *all* plating tanks; as a sump pump-filter combination for *each* tank, where continuous filtration is necessary.



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Complete specifications and information about this model can be obtained from the manufacturer.

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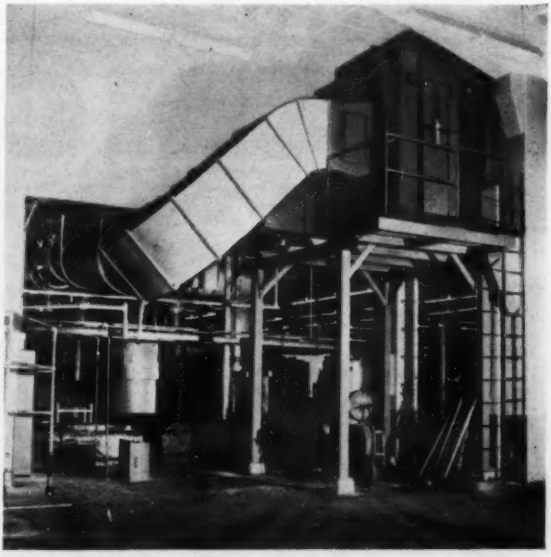
- Simple, economical operation
- No moving parts

How good is your ventilation system? Ask for a survey of your fume control requirements at no cost or obligation. Stop at our display in booths 281 through 284 at the AES Convention and Exposition.

ARco experts are often asked to design a ventilation system to handle corrosive vapors from a finishing system. The units must meet air pollution requirements to bring the plant within safe working conditions! The ARco system illustrated is installed in the central division plant of a well known manufacturer. It captures over 95% of the corrosive dust, vapors, and fumes by a simple and economical operation. It is an example of ARco's ability to design metal finishing fume exhaust systems to solve the problem and stay within the budget.



ARco

MANUFACTURERS • DESIGNERS • ENGINEERS

AUTOMOTIVE RUBBER COMPANY, INC.

12552 BEECH ROAD DETROIT 39, MICHIGAN

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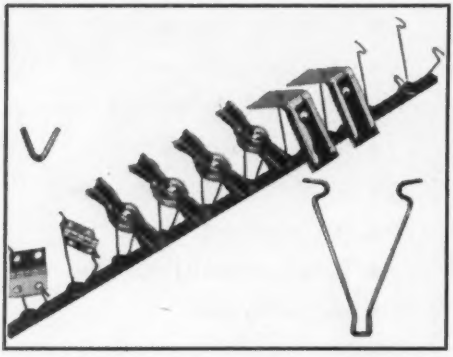


Aluminum Staples for Vacuum Metallizing

metallizing have been introduced by D & W Tool & Findings, Inc.

These aluminum staples are cleaned before they are shipped and are ready for immediate use. They are soft enough so that they can be easily crimped after placing on the firing filament, without harming the filament. Crimping the staples after they are on the filament helps to prevent the staples from being shaken off by vibration of the pump or movement of the firing jig.

Manufacturer: D & W Tool & Findings, Inc., 52 Salem St., Providence 7, Rhode Island.

For more data circle **139** on Reader Service Card

★ ★ ★

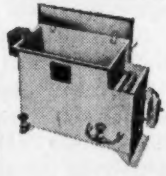
Ultrasonic Cleaning Unit

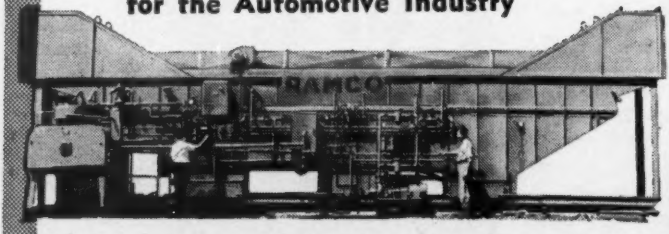
Model DR 125AH will supply enough ultrasonic energy to drive two pairs of ¾-gallon ultrasonic cleaning tanks or one two-gallon tank. The unit creates an ultrasonic radiating area of approximately 50 square inches. It produces an average of 125 watts (500

RAMCO degreasers

from Laboratory Units to Giants for the Automotive Industry

ANOTHER RAMCO PRODUCT





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Giant Degreaser, made by Ramco for leading auto manufacturer.

Call on our engineering department for the latest in ULTRA-SONIC CLEANING.

Send for FREE CATALOG. Call your nearest Ramco engineer and have your metal cleaning equipment SERVICED AT NO CHARGE.

RAMCO EQUIPMENT CORP. Div. of Randall Mfg. Co., Inc.

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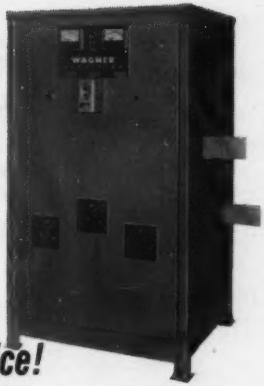
LOOK FOR THE DIAMONDS—SIGN OF FINISHING QUALITY

Process Engineered

WAGNER

SILICON RECTIFIERS



Designed to match a process—not to meet a price!

Wagner Rectifiers are *process engineered* to give uninterrupted power that matches your process, assuring highest efficiency from both equipment and process.

In addition, their important engineering features make them far superior to anything on the market . . . yet they are priced competitive to comparable quality.

Insist on These 5 Wagner Features in Your Next Rectifier:

1. **CUSTOM-BUILT**—to do more than just meet your routine power needs . . . they're built to take the unexpected that occurs in every shop. Momentary extra heavy loads and short circuits are completely and harmlessly absorbed—without cell failure and without shortening rectifier life.
2. **MORE RECTIFICATION AREA**—twice the cells found in ordinary rectifiers, with each cell having over 2½ times the usual rectification area. This gives a uniform power supply, fewer operating troubles, maximum efficiency!
3. **UNIQUE COOLING SYSTEM**—a special-type blower and strategically located baffles force pressurized air directly across the cells, assuring longer cell life and highest possible cell efficiency.
4. **OVERLOAD PROTECTION**—protective devices shut down rectifier before highly unusual overload or other dangerous situation causes damage.
5. **RUGGED COMPONENTS**—Wagner-built transformers have Class B insulation (inorganic materials) . . . bus bars are silver plated . . . housings are ruggedly built . . . meters are sealed to protect their precision accuracy.

Wagner Silicon Rectifiers are available in capacities from 500 to 50,000 amperes with full selection of controls for manual or automatic regulation. Wagner Selenium Rectifiers also available in same capacity range.

Ask your Allied Field Engineer about the many advanced features of Wagner Rectifiers and how they can benefit you in your operations. You'll find his name listed under "Plating Supplies" in the yellow pages. Or, write for FREE TECHNICAL DATA FILES.

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND
BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN
West Coast Licensee for Process Chemicals: L. H. Butcher Co.
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IRIDITE®	IRILAC™	ISOBRITE®	ARP®	WAGNER
Chromate Coatings	Clear Coatings	Plating Brighteners	Chemicals & Supplies	Line of Equipment

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Daconite 5600 saves time and money on production, makes your product sell faster! It is a ready-to-spray lacquer, (Alkyd fortified) recommended for use over blond stains, light fillers, light natural woods, Masonite, metal.

5600 has excellent cold check resistance. It produces a finish of exceptional paleness and color retention quality. Will not ring from alcohol, water or hot dishes. Highly resistant to scuffing, scratching.

5600 has been fully tested. It has the time and money saving features you demand for production line economy and superior finished results.

Write on your letterhead for specifications sheet and testing samples.

JAMES B. DAY & COMPANY
1872 CLYBOURN AVE., CHICAGO 14, ILL.
fine production finishes for industry since 1906

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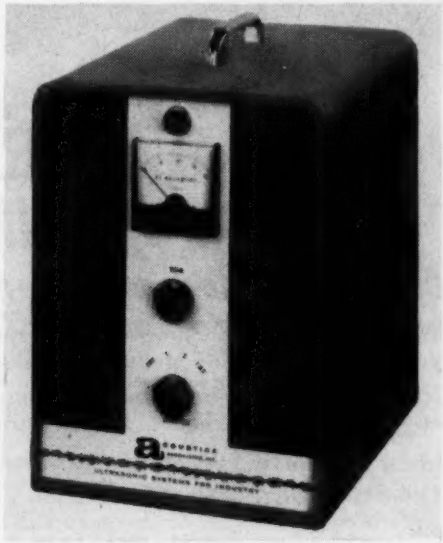
watts peak output at 40-kc.). Operates from 115-volt, 50-60 cycle input.

Applications: Cleaning armatures,



Model DR 125AH Ultrasonic Cleaning Unit

jewelry, clock works, other difficult-to-clean objects.

Manufacturer: Acoustica Associates, Inc., Dept. 125, 26 Windsor Ave., Mineola, L. I., N. Y.

For more data circle **140** on Reader Service Card

★ ★ ★

Coating Thickness Tester

Dermitron Model D-2 coating thickness tester, a product of Unit Process Assemblies, Inc., is a portable instrument for determining thickness of virtually any coating on any base. The unit will measure thickness of a plated coating on a metal base; non-metallic (paint, anodic, porcelain) coating on a metal base; and metal films on non-metallic bases (plastics, ceramics).

Dermitron D-2 comes with four measuring probes for measuring thick and thin deposits. The instrument also can be used for sorting and matching metals and alloys.

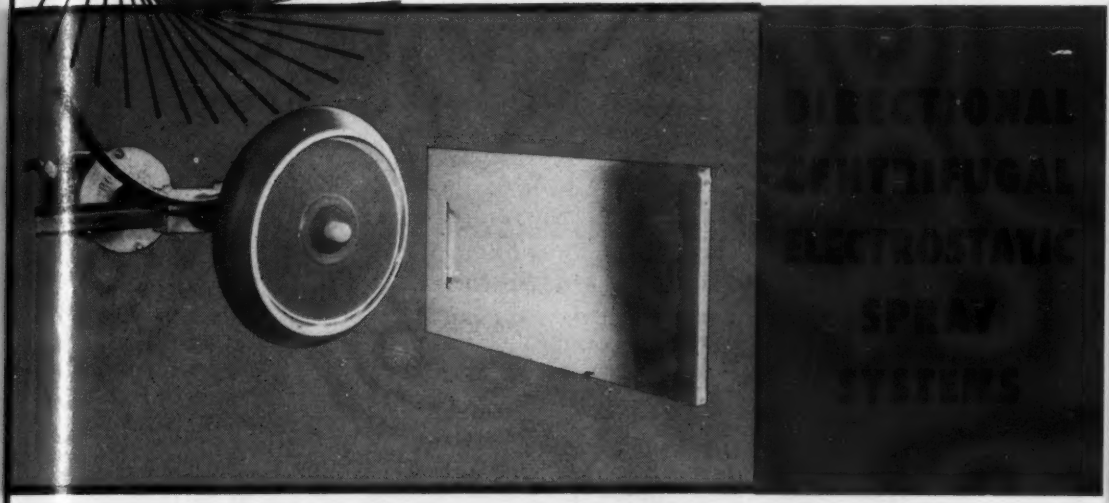
Manufacturer: Unit Process Assemblies, Inc., 61 E. 4th St., New York, New York.

For more data circle **141** on Reader Service Card

For more data on advertisement on opposite page, circle 411 on Postpaid Card ⟶

GYROMAT

Announces:



FEATURES:

1. Centrifugal force is used to atomize and direct the coating material instead of air, and therefore, there is no expanded air to require high velocity exhausts. This feature in combination with an electrostatic field insures high material efficiencies and coverage.
2. Heads emit a consistently uniform directional controllable fan; can be sprayed from any attitude. Fan intercept is rectangular, flat spray type.
3. Skip spraying feature reduces rejects — eliminates build-up, accommodates empty fixtures or gaps — thus eliminating necessity of bunching conveyors.
4. Produces almost perfect overlap and match-in.
5. Many recessed areas, corners, etc. not otherwise possible electrostatically, handled with ease by Gyromat.
6. Very high speed coverage.
7. Simple installation — no major changes usually involved in existing conveyor lines.

Write for complete data

THE GYROMAT CORPORATION

KINGS HIGHWAY CUT-OFF
FAIRFIELD, CONNECTICUT

Metal Protective

Heatbath Corporation has introduced Duralak, a liquid product that contains complex corrosion-inhibiting materials and water-soluble polymers. This material is used to apply clear, thin, hard protective coatings over metals and conversion coatings. The product being coated may be wet or dry. The resultant film increases corrosion resistance and abrasion resistance and may be used as a bond for painting. The material may be applied by brush, immersion or spray.

Manufacturer: Heatbath Corporation, Springfield 1, Mass.

For more data circle **142** on Reader Service Card

★ ★ ★

Ultrasonic Cleaning Equipment

Circo Ultrasonic Corporation recently introduced a line of ultrasonic cleaning equipment that incorporates units with sufficient power to vibrate the transducer at the correct frequency consistently.

The units consist of generator and matching tank with barium titanate transducer bonded to the bottom of the tank. All generators are of the "electronic-pulsed" type and produce two to four times the energy in the liquid on peak pulse.

Circo recommends the equipment for removing solder flux, fingerprints, lint, waxes, grease and polishing compounds from gears, bearings, instruments and other precision equipment.

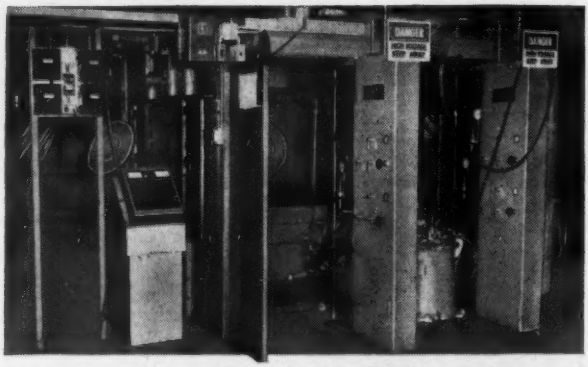
The generator-tank combination units are produced with outputs of 60 to 100 watts and capacities of one to 20 gallon.

Manufacturer: Circo Ultrasonic Corporation, 51 Terminal Ave., Clark, N. J.

For more data circle **143** on Reader Service Card

AN *Ashdee* Electrostatic **Painting System**

-Your Best Way to Reduce Finishing Costs!



Our Engineering Service Will Show You How

. . . Our Laboratory Will Prove It to YOU

Let us make a free analysis of your finishing problem . . . a test run of your products in our laboratory . . . and design a system to give you the greatest efficiency and maximum savings. Ashdee systems may be purchased outright or leased.

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***Ashdee* ELECTROSTATIC DIVISION**

INDUSTRIAL ELECTRONICS CO., INC.

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Electrostatic Paint Laboratories: JOLIET, ILL. 10 Third Ave. · DALLAS, TEXAS 1025 Levee St. · ROCKLAND, MASS. 99 Grove St. · MILAN, ITALY

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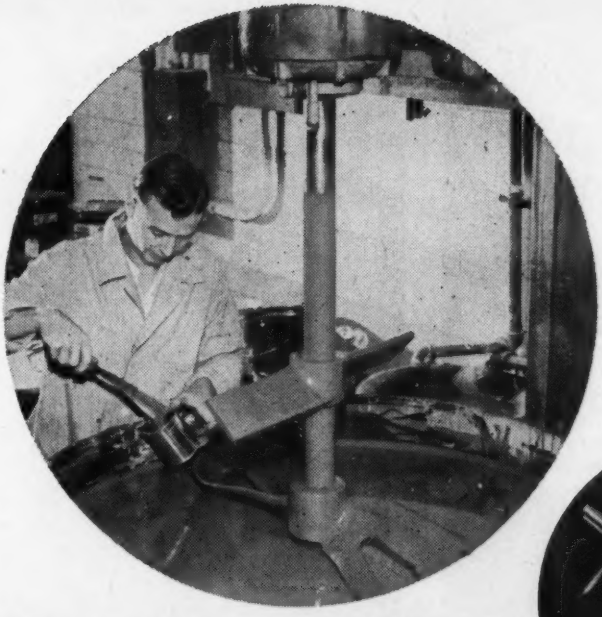

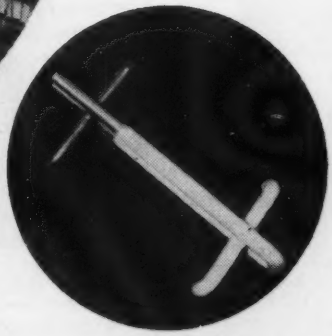

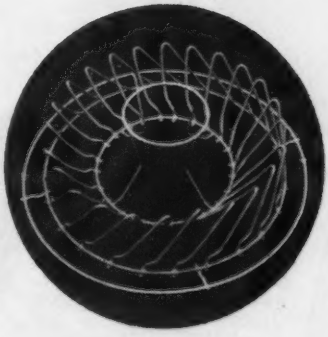

COATING STEEL?

REYNOSOL CAN DO IT BEST!

There's a special Reynosol formulation for your coating problem. And if it's steel you're coating you'll be interested in the extra benefits that only Reynosol can offer you.

What are they? Greater resistance to temperature . . . truest color control . . . greater tensile strength . . . lower total cost.

Let Reynolds Chemical show you — specifically — how Reynosol can do *your* coating job better.

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DIVISION OF STUBNITZ GREENE CORP.

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Cut Finishing Costs THROUGH INCREASED PRODUCTION

SPRAY PAINTING MASKS

A competent engineering staff will counsel with you on the most efficient technique for handling your particular requirements.

CLAMPS AND FIXTURES

Positive pressure and exact registration of the part in the mask. Reduce rejects. Free both hands for productive movements.

AUTOMATIC MACHINES

Increase production hundreds to one over hand methods. Reduce labor costs. Eliminate need of experienced workmen.

MASK WASHING MACHINES

50% faster than any other make. Cut solvent consumption. Avert production delays due to damaging of masks by hand scrubbing.

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Conforming Matrix CORPORATION

386 Toledo Factories Building Toledo 2, Ohio

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FOR CONTOUR WORK

HARD METALS (HEAVY CUT)

SISAL UNIFLEX BUFFS

Flexible, strong and long-wearing, SISAL buffs are best for fast, heavy-duty cutting on hard metal with contoured surfaces. Construction is over-lapped for cool running, no streaking, unusual flexibility. Each individual buffing pad has an extra fold—to carry more compound on the leading edge for faster cutting with minimum buff wear.

Special "Garfield" chemical treatment available for all SISAL BUFFS. Centers are avaiable 5", 7" or 9" in diameter.

Garfield BUFF CO.

CApital 6-7900

6 Clinton Road Caldwell, N. J.

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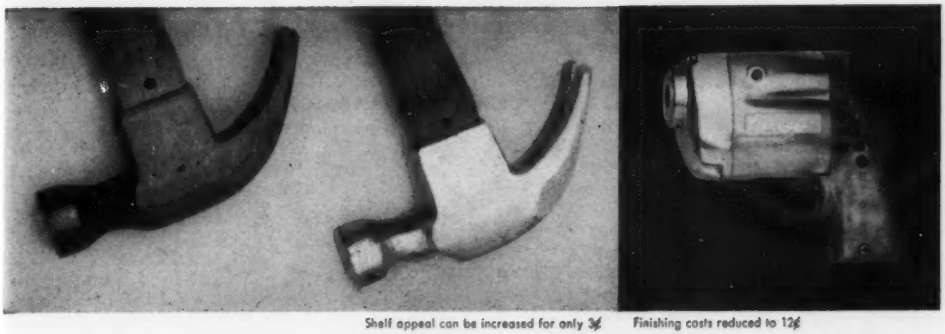
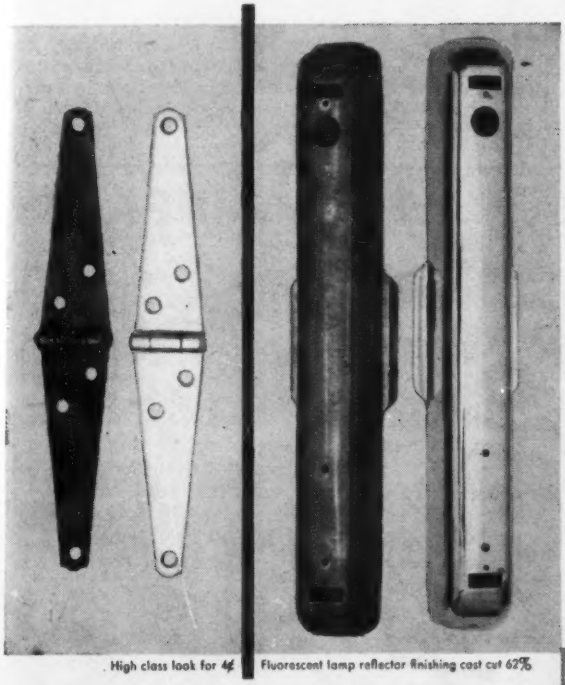


Shelf appeal can be increased for only 3¢ Finishing costs reduced to 12¢

If It Looks Good . . . It Sells Better



High class look for 4¢ Fluorescent lamp reflector finishing cost cut 62%

If you're looking for a way to increase the sales appeal of your products by adding a quality appearance at low cost, you should investigate vacuum coating.

While this modern process is not a cure-all, most likely you'll find it will add new life to the items you manufacture — and may cut your costs spectacularly, too! Brilliant, eye-catching, metallic finishes, in a wide range of colors, can be applied on plastics, metals, wood, glass, paper, fabrics and many other materials. Today's vacuum coatings are brighter than buffed and polished electroplating, cost less, and in some applications stand up better.

You don't have to take chances, either. Send us a sample of your product and give us details about its use. We'll tell you whether your application is a good one, show you how your product will look, and estimate your costs. Then, if you want, we'll supply a complete installation, guarantee its output, show you how to run it efficiently, and even train your operators.

Write us today!

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DEPT 23-F, CHARLEMONT ST., NEWTON, MASS.

NRC

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EQUIPMENT CORPORATION

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PRODUCT LITERATURE

144. Spindle Finishing Machine
Data sheet describes Abrado-Matic TS-31 single-spindle finishing machine, a high-production finishing unit for processing fixtured metal parts in a rotating mass of abrasive media. Abrado Finish Corp., 1750 Elizabeth Ave., N.W., Grand Rapids, Mich.

145. Coated Abrasives
Information on the company's line of coated abrasive products: belts, rolls, sheets, discs, specialties. Abrasive Products, Inc., South Braintree 85, Mass.

146. Automatic Polishing and Buffing Machines
A 16-page booklet discusses basic factors to consider when selecting one of seven types of straight-line machines. Detailed information is given on design features, applications, operating features. Acme Manufacturing Co., 1400 E. Nine Mile Rd., Detroit 20, Mich.

147. Ultrasonic Cleaning Systems
Literature on heavy-duty industrial ultrasonic cleaning equipment. Acoustica Associates, Inc., 26 Windsor Ave., Mineola, N. Y.

148. Clear Semi-Gloss Lacquer
Information on Agateen No. 2B semi-gloss lacquer. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Rd., Long Island City, New York.

149. Chemical Polish for Aluminum
Information on Alchemize Chemical Polishing Concentrates. Alchemize Corp., 621 S. Kolmar Ave., Chicago 24, Ill.

150. Cold Stripper
Technical sheets describe Electro Cold Stripper, a non-flammable liquid paint remover that will strip air-dry and high-bake synthetic coatings, alkyds, epoxies, vinyls, phenolics and so on. This product is useful in removing specialized coatings such as photo resists, vacuum plated coatings, and is also used in conjunction with ultrasonic cleaning operations. Available in liquid form for dipping operations or in viscous form for brush application or flow on. Allied Finishing Specialties Co., 2643 W. Grand Ave., Chicago 12, Ill.

151. Plating Brighteners
Data file on the company's line of "chemically different" plating brighteners. Allied Research Products, Inc., 4004-06 E. Monument St., Baltimore 5, Maryland.

PROTECT FINE PLATED SURFACES

with **RP** *Neotex*®
PROTECTIVE MESH

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

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RESEARCH PRODUCTS CORPORATION
Dept. 76, Madison 1, Wis.
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"SWING-BOLT" *Fulflo* FILTER CUTS YOUR PLATING COSTS

Now . . . the new Fulflo Rubber-Lined Steel Filter for plating cuts your filter maintenance costs in half, while providing tank turnover up to 3 times per hour.

New swing-bolt cover simplifies and speeds up changing elements. Just loosen the bolts, swing them out of the way, and lift off the cover to provide complete access to the patented Honeycomb Filter Tubes. Tubes are completely changed in a matter of minutes.

New bottom outlet allows for quick, easy cleaning of entire vessel simply by addition of a "T" connection with drain valve. You save time and labor.

Best of all, new engineering and production refinements enable us to offer this filter at an even lower price than the previous model.

The new Fulflo Rubber-Lined Steel Filter is offered in six sizes, with from 6 to 60 Honeycomb Filter Tubes, for capacities up to 18,000 gph. Steel or stainless steel containers are also available.

It will pay you to look into this new Fulflo Filter to improve plating quality at lower cost.

For qualified engineering advice, or new technical literature, write to Department PF.

COMMERCIAL FILTERS CORPORATION
MELROSE 76, MASSACHUSETTS
PLANTS IN MELROSE, MASSACHUSETTS AND LEBANON, INDIANA

MICRO-CLARITY AT MINIMUM COST

Fulflo FILTERS — *with genuine Honeycomb Filter Tubes for controlled micro-clarity of industrial fluids.*

CFC FILTERS — *Selective filtration of oils • water-oil separators • magnetic separators • pre-coat filters • coolant clarifiers • automatic tubular conveyors.*

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152. Vibrating Finishing Machine
Almco Album of New Products contains full information on the Almco Vibrasheen, which vibrates a five-cubic-foot load of parts and media to remove burrs and finish hard-to-reach internal crevices. Almco, Queen Products Div., 84 E. Main St., Albert Lea, Minn.

153. Conversion Coating for Aluminum
Bulletin 1424-A describes complete line of protective and prepaint treatments for aluminum. Discusses advantages, applications, equipment needed. Lists types of products treated and includes convenient selection chart. Amchem Products, Inc., Ambler 29, Pa.

154. Tank Lining
Literature describes advantageous features of Amercoat PVC tank lining. Amercoat Corp., Dept. ED, 4809 Firestone Blvd., South Gate, Calif.

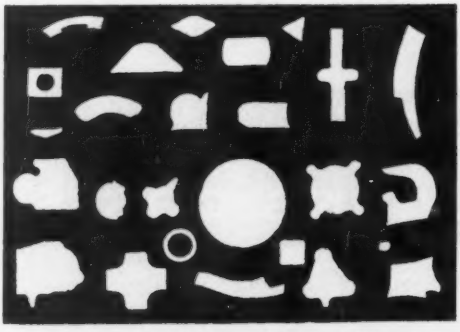
155. Alloy Anodes for Acid Copper Plating
Reprint of a technical paper that describes a synthesized anode containing small quantities of phosphorous, tellurium, selenium and silver. The American Brass Co., Waterbury 20, Conn.

156. Copper Anodes
Data on OFHC anodes, made from the purest copper commercially produced, with low porosity, excellent grain structure, top anode efficiency in both acid and cyanide baths. American Metal Climax, Inc., 500 Fifth Ave., New York 36, New York.

157. Electrocleaner
Information on Apex "Electro 100" cleaning compound, a general-purpose low-current-density electrolytic cleaner. Apex Alkali Products Co., Main & Rector Sts., Philadelphia 27, Pa.

158. Electronic Painting System
Bulletin contains complete technical information on a system for spraying paint by using conventional automatic spray gun and ionizing electrodes to charge the paint as it leaves the guns. Products to be painted are grounded, thus they attract the charged paint particles. Ashdee Electrostatic Div. Industrial Electronics Inc., 10 Third Ave., Joliet, Ill.

159. Fast-Application Buffing Compound
Information on a greaseless buffing compound that is packaged in a plastic container which wears away as the compound is used, eliminating the need for stripping off the cover. Atlantic Compound Co., 6 Charles St., Chelsea 50, Massachusetts.



Pre-Cut Masks Speed Finishing

Brady Pre-Cut Masks are self-sticking — go on fast and accurately. Protect from finishing to inspection. Hundreds of shapes and sizes in stock, for paint spraying, baking, tumbling, etc. Specials made to order. Fast delivery. Distributors in 150 cities.

Write for free samples and Bulletin 160-C.

W. H. Brady Co.

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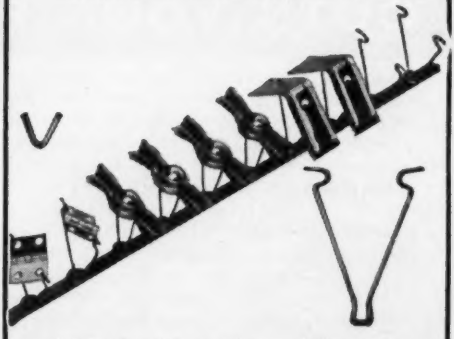
We Manufacture

Racks, Spring Wire Forms, Staples and Other Accessories for the Vacuum Metallizing Trade. Shipped from Stock or Special Order.



Write for Information and Samples

D & W TOOL & FINDINGS, INC.

52 SALEM ST • PROVIDENCE 7, R. I.

STUART 1-4554

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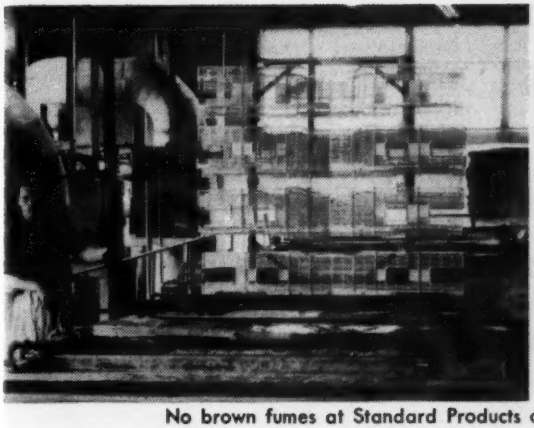

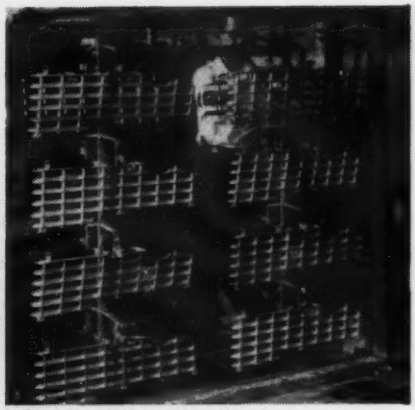

No brown fumes at Standard Products of Canada, Ltd., as leading automotive parts manufacturer bright dips and anodizes grilles.

ELIMINATE BROWN FUMES with new ALUMINUM-BRIGHT DIP

New KENVERT® #46-A powder eliminates corrosive brown nitrogen oxide fumes from the bath and work in transfer. With this additive you will have a more stable bath, therefore consistent results. Solution control is easier. Savings result from less acid consumption, reduced expense for exhaust and ducting systems, and more efficient working conditions.

KENVERT #46-A ADVANTAGES

- Eliminates Brown Fumes
- More Stable Bath
- Less Sludging
- Eliminates Pitting
- Easy to Use Powder
- High Temperature Not Required

KENVERT #40 CHROME SEALER PROTECTS ALUMINUM

Gives maximum corrosion protection . . . film has low microhm resistance . . . excellent base for paint . . . meets requirements of specification MIL-C-5541.

KENVERT SLUFF-OFF REMOVES BUFFING COMPOUND

Removes buffing compound from aluminum, steel or nickel plate . . . try a sample and watch the compound slide off.

ASK about other KENVERT bright dips for high purity aluminum

CONVERSION CHEMICAL CORPORATION

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Licensee: Nicromatic Ltd., Toronto, Canada
Distributors in major industrial United States cities

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160. Air-Wash Systems
Bulletin No. 256 describes acid-proof air washers for removing fumes and corrosive gases from exhaust air. Tells how these units work, lists materials of construction and accessories that are available. Automotive Rubber Co., Inc., 12550 Beech Rd., Detroit 39, Mich.

161. Felt Polishing Products
A 12-page booklet describes felt wheels, tells about typical applications; has table to aid in selection of felt wheels; table of specifications: directions for setting up and caring for felt wheels; maintenance "do's" and "don'ts"; other useful data. Bacon Felt Co., 447 W. Water St., Taunton, Massachusetts.

162. Tumbling, Barrel Finishing Equipment
Catalog No. 50: complete descriptions, specifications for line of barrel finishing machines, tumbling barrels. The Baird Machine Co., Stratford, Conn.

163. Centrifugal Machinery
A 16-page brochure describes line of centrifugal machinery that includes oil extractors, dryers, washers, washer-dryers, galvanizers, enamelers, impregnators, other machinery. Includes performance and application data. Leon J. Barrett Co., 1449 Grafton Rd., Worcester 1, Massachusetts.

164. Belt Finishing Materials
Selection of offhand belt finishing materials is simplified by means of a wall chart that lists proper abrasives, grit size and type, belt speed, lubricant and contact wheel for 16 of the most popular metals and alloys. Behr-Manning Co., Dept. PF-2, Troy, N. Y.

165. Plating Racks
Illustrated bulletin on Thinker Boy plating racks, which are made of stock insulated parts that assemble with a leakproof seal. Belke Manufacturing Co., 947 N. Cicero Ave., Chicago 51, Ill.

166. Die Cast and Aluminum Cleaners
Technical data on Benchmark die cast and aluminum cleaners, completely soluble, odorless, non-toxic, non-flammable chemicals which are said to remove buffing compounds and other soils in a minimum time. Benchmark, Inc., 1060 Arch St., Wyandotte, Mich.

167. Corrosion-Resistant Coatings
Booklet entitled "What Every Maintenance Man Should Know About Urethane Coatings" describes characteristics of these plastic coatings: resistance to corrosive chemicals and fumes; resistance to abrasion, heat, sunlight, weather. Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J.

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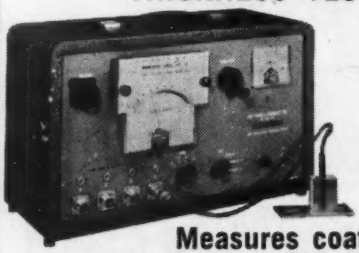

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168. Buffs for Automatics
Literature on buffs designed for use on automatic buffing machines. The Bias Buff Div., Riegel Textile Corp., 260 Madison Ave., New York 16, N. Y.

169. Buffs
Data on air-cooled Ventex buffs with permanent or removable centers. Bison Corp., 1935 Allen Ave., S.E., Canton, Ohio.

170. Degreasing Solvent
Information on Blacosolv degreasing solvent. Dept. 104-1, G. S. Blakeslee & Co., 1844 S. Laramie Ave., Chicago 50, Illinois.

171. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co., 2639 N. Clybourn Ave., Chicago 14, Ill.

172. Anodized Aluminum Nameplates
Four-page bulletin No. 177 describes adhesive-backed anodized aluminum nameplates. W. H. Brady Co., 746 W. Glendale Ave., Milwaukee 9, Wis.

173. Abrasive Belt Finishing Machinery
Information on Bush Model M-200 Yoke Sander. Bush Mfg. Co., 900 N. Rochester Rd., Clawson, Mich.

174. Masking Aids
"Time-Saving Masking Aids for Better Product Finishing" is the title of an illustrated brochure that describes masking discs, plugs, caps, corks, tape. Includes information on tape dispensers. By-Buk Co., 4314 W. Pico Blvd., Los Angeles 19, Calif.

175. Conveyor Planning Folder
Illustrated catalog includes explanatory diagrams, plant and conveyor planning grid, sheets for preliminary layouts. Chainveyor Corporation, 5618 E. Washington Blvd., Los Angeles, Calif.

176. Buffs
Data sheet describes Buff Type No. 20-DOTA, a heavy-duty buff made of sisal twine, used for finishing steel, brass, aluminum. Geo. R. Churchill Co., Inc., Dept. PF-29, Hingham, Mass.

177. Cleaning and Finishing Machinery
A two-page bulletin describes machines, systems and processes for cleaning and finishing metal products. Cincinnati Cleaning & Finishing Machinery Co., 2008 Hageman St., Cincinnati 41, Ohio.

178. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc., 121 S. Columbus Ave., Mount Vernon, N. Y.

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111 West 7th St., Los Angeles, Calif.
5-252 General Motors Bldg., Detroit, Mich.

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179. Filters for Compressed Air
Bulletin GEO-507. Four pages of information on various types and sizes of filters for compressed air and other gases. Includes technical information and charts on flow characteristics, physical dimensions, and metals of which the filters are made. Commercial Filters Corporation, Melrose 76, Mass.

180. Spray Decorating Equipment
A data file of spray decorating equipment includes information on electroformed masks, clamps and pressure fixtures, automatic mask washers, automatic spray decorating machines. Conforming Matrix Corporation, 356 Toledo Factories Bldg., Toledo 2, Ohio.

181. Vacuum Plating
Information on depositing metallic coatings by the vacuum plating method. Consolidated Electrodynamics, Rochester Div., Rochester 3, N. Y.

182. Selection of Chromate Coatings
Fact sheet serves as an aid to the quick selection of chromate sealing and brightening finishes for non-ferrous metals. Printed on the back and front of Fact Sheet F-2 are the directions for use of the proper Kenvert coating to obtain the finish desired. Conversion Chemical Corporation, 99 E. Main St., Rockville, Connecticut.

183. Aluminum Etchant
Technical data sheet on Cowles AK tells how this formulation works on all aluminum alloys, prevents build-up of scale by means of a special sequestering agent. Cowles Chemical Co., 7016 Euclid Ave., Cleveland 3, Ohio.

184. Bronze Powders
Color card shows 33 colors of bronze-like finishes that can be produced from stock Cres-Lite bronze powders. Crescent Bronze Powder Co., 118 W. Illinois St., Chicago 10, Ill.

185. Metallizing Material
Staples made of extremely pure aluminum and prepared for use in vacuum metallizing are described in literature available from D & W Tool & Findings, Inc., 52 Salem St., Providence 7, R. I.

186. Water-White Lacquer
Information on Daconite 5600 clear lacquer, a ready-to-spray lacquer that is said to have excellent paleness and color retention. James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

187. Spray Nozzles
Catalog No. 33-A is designed to help the user select the proper type of spray nozzle for a particular application. Complete data on each type of nozzle, includ-

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ing photo, construction details, capacity, recommended uses, spray characteristics, materials available. Delavan Mfg. Co., Grand Ave. and Fourth St., West Des Moines, Iowa.

188. Electrolytic Cleaners
Information on new electrolytic cleaners that assure absolute removal of buffing and polishing compounds and all other intentional soils. Detrex Chemical Industries, Inc., Box 501, Dept. PF-659, Detroit 32, Mich.

189. Titanium Anodizing Cylinder
Data sheet describes and illustrates an all-titanium anodizing cylinder that is useful in bulk processing of bolts, rivets, screws. Requires no stripping, resists acids. Detroit Industrial Process Co., 9301 French Rd., Detroit 13, Mich.

190. Paint Heaters
Information on DeVilbiss paint heaters. The DeVilbiss Co., Toledo 1, Ohio.

191. Chromium Plating Additive
Information on Diamond CPA 1800, an additive for chromium plating baths which improves throwing power of the solution and metallurgical characteristics of the plate. Diamond Alkali Co., 300 Union Commerce Bldg., Cleveland 14, Ohio.

192. Sintered Tumbling Shapes
Bulletin describes a new type of sintered metal tumbling media that is produced by a sintering process. Dixon Sintaloy, Inc., 537 Hope St., Stamford, Conn.

193. Rectifier Conversion Kit
Catalog on silicon conversion kits for plating rectifiers. Dresser Electric Co., 2705 Wight St., Detroit 7, Michigan.

194. Ovens, Finishing Systems
Information on the company's line of complete finishing systems and baking and drying ovens. Drying Systems Co., Div. Thor Power Tool Co., 1809 Foster Ave., Chicago 40, Ill.

195. Water Wash Spray Booth Compound
Information on Diff. LX Klarifiant, a spray booth compound that is said to prevent clogged nozzles, booth rusting, foam, and curtain "build-up." DuBois Co., Inc., 1120 W. Front St., Cincinnati 3, Ohio.

196. Ready-Mixed Gold
Information on Sea-Lac ready-mixed gold finishes for application by spray or dip. Duralac Chemical Corp., 84 Lister Ave., Newark, N. J.

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197. Electropolishing Stainless Steel
Literature on baths for electropolishing stainless steel includes operating instructions for two of these baths. Electro-Glo Co., 621 S. Kolmar Ave., Chicago 24, Ill.

198. Bright Cyanide Copper Plating Process
Manual on McCoy's new 23-11 organic process for leveling bright cyanide copper plating, which is said to produce brilliant mirror-like deposits from one to 100 a.s.f. Electrochemical Products, Inc., 1760 Alverno Dr., Brookfield, Wisconsin.

199. Solution-Level Control
Details on a device that will automatically control the level of solution in a tank. Elkhart Controls Co., Dept. T, Route No. 2, Elkhart, Indiana.

200. Black Finishes
Information on Ebonol products for blackening steel, copper, brass, zinc. Enthone, Inc., 442 Elm St., New Haven 11, Conn.

201. Barrel Finishing Media
New folder discusses all types of barrel finishing media, including aluminum oxide chips, triangles and spheres, natural chips, novaculite, granite, limestone, and steel media. Also gives detailed size specifications for each type. The Esbec Barrel Finishing Corp., 18 Beech St., Byram, Conn.

202. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co., 120 Broadway, New York 5, N. Y.

203. Buffs
Information on Zip-Tip buffs for flat or irregular surfaces. Formax Mfg. Corp., Detroit 7, Mich.

204. Tumbling Media
Information on preformed tumbling media and abrasive products. Over 200 sizes and bonds available. Fortune Industries, Inc., 11770 Dexter Rd., Chelsea, Mich.

205. Heat-Fusible Plastisol
Data on new XL-12 heat-fusible plastisol, a formulation that bakes at 365-375 for eight hours without decomposition or color change; is impervious to plating solutions; resists cutting and abrasion. The G. S. Plastics Co., 15583 Brookpark Rd., Cleveland 35, Ohio.

206. Color-Difference Meter
Card describes and illustrates Gardner Automatic Color Difference Meter, an instrument for determining reflectance and color. Gardner Laboratory, Inc., 5521 Landy Lane, Bethesda 14, Md.

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1	26	51	76	101	126	151	176	201	226	301-2nd Cov.	347	372	397	422	447	472	497	522	547	572	597	622	647	672	697	722
2	27	52	77	102	127	152	177	202	227	302-3rd Cov.	348	373	398	423	448	473	498	523	548	573	598	623	648	673	698	723
3	28	53	78	103	128	153	178	203	228	303-4th Cov.	349	374	399	424	449	474	499	524	549	574	599	624	649	674	699	724
4	29	54	79	104	129	154	179	204	229	304		350	375	400	425	450	475	500	525	550	575	600	625	650	675	700	725
5	30	55	80	105	130	155	180	205	230	305	326	351	376	401	426	451	476	501	526	551	576	601	626	651	676	701	726
6	31	56	81	106	131	156	181	206	231	306	327	352	377	402	427	452	477	502	527	552	577	602	627	652	677	702	727
7	32	57	82	107	132	157	182	207	232	307	328	353	378	403	428	453	478	503	528	553	578	603	628	653	678	703	728
8	33	58	83	108	133	158	183	208	233	308	329	354	379	404	429	454	479	504	529	554	579	604	629	654	679	704	729
9	34	59	84	109	134	159	184	209	234	309	330	355	380	405	430	455	480	505	530	555	580	605	630	655	680	705	730
10	35	60	85	110	135	160	185	210	235	310	331	356	381	406	431	456	481	506	531	556	581	606	631	656	681	706	731
11	36	61	86	111	136	161	186	211	236	311	332	357	382	407	432	457	482	507	532	557	582	607	632	657	682	707	732
12	37	62	87	112	137	162	187	212	237	312	333	358	383	408	433	458	483	508	533	558	583	608	633	658	683	708	733
13	38	63	88	113	138	163	188	213	238	313	334	359	384	409	434	459	484	509	534	559	584	609	634	659	684	709	734
14	39	64	89	114	139	164	189	214	239	314	335	360	385	410	435	460	485	510	535	560	585	610	635	660	685	710	735
15	40	65	90	115	140	165	190	215	240	315	336	361	386	411	436	461	486	511	536	561	586	611	636	661	686	711	736
16	41	66	91	116	141	166	191	216	241	316	337	362	387	412	437	462	487	512	537	562	587	612	637	662	687	712	737
17	42	67	92	117	142	167	192	217	242	317	338	363	388	413	438	463	488	513	538	563	588	613	638	663	688	713	738
18	43	68	93	118	143	168	193	218	243	318	339	364	389	414	439	464	489	514	539	564	589	614	639	664	689	714	739
19	44	69	94	119	144	169	194	219	244	319	340	365	390	415	440	465	490	515	540	565	590	615	640	665	690	715	740
20	45	70	95	120	145	170	195	220	245	320	341	366	391	416	441	466	491	516	541	566	591	616	641	666	691	716	741
21	46	71	96	121	146	171	196	221	246	321	342	367	392	417	442	467	492	517	542	567	592	617	642	667	692	717	742
22	47	72	97	122	147	172	197	222	247	322	343	368	393	418	443	468	493	518	543	568	593	618	643	668	693	718	743
23	48	73	98	123	148	173	198	223	248	323	344	369	394	419	444	469	494	519	544	569	594	619	644	669	694	719	744
24	49	74	99	124	149	174	199	224	249	324	345	370	395	420	445	470	495	520	545	570	595	620	645	670	695	720	745
25	50	75	100	125	150	175	200	225	250	325	346	371	396	421	446	471	496	521	546	571	596	621	646	671	696	721	746

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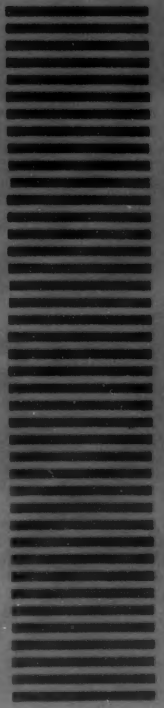

207. Buffs
Folder describes company's line of buffs: bias-type cloth, sisal, cloth uniflex, others. Garfield Buff Co., 6 Clinton Rd., Caldwell, N. J.

208. Immersion Heaters
Bulletin describes and gives specifications for acid- and alkali-resistant quartz immersion heaters. Glo-Quartz Electric Heater Co., Inc., Willoughby, Ohio.

209. Chemical Polishing Solutions
Information on a line of chemical polishing solutions. Globe Chemical Co., Inc., Murray Rd. & Big Four R.R., Cincinnati 17, Ohio.

210. Patented Buff
Information on a buff with a patented mounting that maintains a cutting angle of 45 degrees, for faster, smoother cutting with less pressure. Guaranteed Buff Co., Inc., 20 Vandam St., New York 13, New York.

211. Liquid-Seal Air Spray Painting Process
Booklet describes and illustrates features of the Gyromat liquid-seal air-spray process, an automatic spray painting system with no measurable overspray loss, no necessity for spray booth. The Gyromat Corporation, P.O. Box 600, Fairfield, Conn.

212. Belt Grinder
Bulletin 336-T describes and illustrates Model UBG-50 universal belt grinder, a machine with two heads—one for internal and flexible-belt grinding, one for contact wheel, flexible-belt, platen and contour-wheel grinding. Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

213. Plating Conveyor
Information on new low-cost Fleximatic conveyor for plating, anodizing and phosphatizing operations. Bulletin FAC-300. Hanson-Van Winkle-Munning Co., Matawan, N. J.

214. Bright Copper
Data sheet describes Cynorex high-speed copper cyanide plating process and Cuprex acid copper plating process, tells about advantages of each. Harshaw Chemical Co., 1945 E. 97th St., Cleveland 6, Ohio.

215. Plating Waste Recovery
Literature describes systems for recovering valuable materials from plating wastes. These systems will return fresh plating solutions to the plating tanks and at the same time return pure water to rinse tanks. Industrial Filter & Pump Mfg. Co., 5904 Ogden Ave., Chicago 50, Illinois.

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216. Automatic Rinse-Tank Controller
Complete details on the Solu-Bridge conductivity control and how it can be used to save water and sewage costs. Industrial Instruments, Inc., 89 Commerce Rd., Cedar Grove, Essex County, New Jersey.

217. Conveyorized Finishing Systems
Information on finishing systems for painting articles that are turned out in large quantities. Industrial Ovens, Inc., 13811 Triskett Rd., Cleveland 11, Ohio.

218. Color-Matching Service
Information on a color-matching service. Colors matched in lacquers and enamels. The J. J. R. Company, 15805 Waterloo Rd., Cleveland, Ohio.

219. Brass Additive
Information on an additive formulated to increase efficiency and throwing power of brass plating solutions. Jelco Finishing Equipment Corp., 153 E. 26th St., New York 10, N. Y.

220. Alkaline Soak Cleaner
Technical data on Kelite Supersolv, a soak cleaner used prior to electrocleaning. This material is a non-etch, nonpassivating alkaline soak cleaner for use on zinc-base die-cast parts. Kelite Corporation, 81 Industrial Rd., Berkeley Heights, N. J.

221. Fume Control System
Booklet F shows typical installations of Kirk & Blum fume-control systems. Kirk & Blum Mfg. Co., 3116 Forrer St., Cincinnati 9, Ohio.

222. Pressure Curtain Coater
Data File SIF-7 contains complete data on the Steinemann-Koch pressure curtain coater, which applies a uniform coating of lacquer or synthetic material on flat or moderately curved work. Patented Swiss process in which a vertical film is poured onto the work from adjustable orifices as the work passes through the machine. George Koch Sons, Inc., Evansville 4, Indiana.

223. Thickness Tester
Description of the Kocour Model 955 electronic plating thickness tester. Kocour Co., 4814 S. St. Louis Ave., Chicago 32, Illinois.

224. Tumbling Machines
Literature describes and illustrates various tumbling machines. H. W. Kramer Co., 120-30 Jamaica Ave., Richmond Hill 18, New York.

225. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School, P. O. Box 2066, Station "D," Evansville 14, Indiana.

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226. Baking and Drying Equipment
Catalog No. 560 describes and illustrates various types of baking and drying equipment. The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio.

227. Leather-Grain Finish
A finish that bakes to a tough, abrasion-resistant leather-like texture. The Lowe Brothers Co., Dayton 2, Ohio.

228. Colored Chromates
A group of compounds for producing chromate conversion coatings on zinc and cadmium plate, zinc die castings and aluminum is described in Data Sheet No. 76, a five-page usage and instruction sheet. Called Macromates, these new products are available in colors ranging from clear to olive drab. MacDermid, Inc., Waterbury 20, Conn.

229. Stripping Additive
Special bulletin on Magnus Activall, an additive said to increase efficiency and effectiveness of caustic strippers. Magnus Chemical Co., Inc., 208 South Ave., Garwood, N. J.

230. Compounds for Barrel Processing
"Permag Compounds for Barrel Processing" is the title of a manual that gives basic information on barrel processing compounds, specific data on deburring and roughing, coloring and burnishing, descaling, rust prevention, neutralizing, other topics. Includes methods for calculating volumes of barrels, notes from case histories. Magnuson Products Corp., 50 Court St., Brooklyn 1, N. Y.

231. Finishing Systems
Catalog No. A-658 discusses the advantages of complete, conveyorized finishing systems. Includes data on cleaning and pickling equipment, ovens, spray booths, air-supply systems, complete systems for painting, porcelain enameling, flow and dip coating. The R. C. Mahon Co., Detroit 34, Mich.

232. Tack Cloth
Information on specially treated cloths that are used for removing dust and lint just prior to paint finishing operations. Mard Products, Inc., 1020 E. Ten Mile Rd., Hazel Park, Mich.

233. Pearlescent Finishes
Information on Nacromer YNC, an additive that is used in standard organic finishes to produce a pearlescent finish. The Mearl Corporation, 41 E. 42nd St., New York 17, N. Y.

234. Finishing Systems
Bulletin shows typical integrated complete systems for applying organic coatings. Includes description of products be-

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ing coated, the process used and specifications for the system. Michigan Oven Co., 431 Brainard Ave., Detroit 1, Mich.

235. Glass Shot
Information on Microbeads Glas-Shot, microscopic glass beads for use in wet and dry blasting equipment for cleaning, polishing, peening and finishing. Microbeads, Inc., P.O. Box 241, Jackson, Mississippi.

236. Black Conversion Coatings and Cleaners
Catalog lists and describes line of black conversion coatings, rust proofing oils and waxes, cleaners, acid addition agents, drying aids for plated parts. Data sheets give complete operating information, tell about equipment needed, how to control baths and so on. Mitchell-Bradford Chemical Co., Wampus Lane, Milford, Conn.

237. Textured Vinyl Coatings
Information on warm-to-the-touch textured vinyl coatings that heat cure at moderate temperatures. Organic Chemicals Div., Monsanto Chemical Co., Dept. SP-2, St. Louis 66, Mo.

238. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum upenders, drum wrenches, carts and so on. Morse Mfg. Co., Inc., 762 W. Manlius St., E. Syracuse, N. Y.

239. High-Vacuum Equipment
A 16-page product summary and price list describes a complete line of high-vacuum equipment, components and systems, including vacuum coaters, leak detectors, impregnating equipment, other products. NRC Equipment Corporation, 160 Charlemont St., Newton 61, Mass.

240. Orbital Sander
Catalog describes and illustrates the Mity-Midget, an orbital sander that weighs only four pounds, yet cannot be stalled even by standing on it. National-Detroit, Inc., Rockford, Ill.

241. Fusion-Bond Finishes
Bulletin gives details on Corvel finishing resins, used as the finishing material in a process for cladding metals with plastic materials. Applied in a fluidized bed, resins include cellulosic, vinyl, epoxies, nylon, chlorinated polyether and ethylene-base resins. National Polymer Products, Inc., Reading, Pa.

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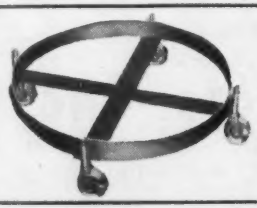

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242. Metal Preparation Products
Literature describes products for cleaning, rust removal, phosphatizing, conversion coating and cold forming. Neilson Chemical Co., 2302 Gainsboro, Detroit 20, Ferndale, Mich.

243. Centrifugal Dryer
Four-page folder gives complete details on the Model 20 New Holland Kreider centrifugal dryer. New Holland Machine Co., Dept. PF, New Holland, Pa.

244. Clear Protection
Information on 2105 Clear Lacquer for the protection of brass, silver, bronze and copper. G. J. Nikolas & Co., Inc., 2880 Washington Blvd., Bellwood, Ill.

245. Airless Spray Equipment
Four-page catalog tells how airless spray painting process works, describes advantages, equipment required and accessories available. Nordson Corporation, Jackson St., Amherst, Ohio.

246. Nickel Plating Salts
Information on company's line of "Quality Certified" nickel plating salts. Nuodex Products Co., Elizabeth, N. J.

247. Room-Temperature Cleaner
Savings made possible by cleaning metals with Oakite Room-Temp Cleaner are described in a folder that tells about a new cleaning compound that can be used in the 80-100 deg. F. temperature range. Folder F10596. Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

248. Automatic Polishing
Information on automatic polishing and buffing machines. Packer Machine Co., Meriden, Conn.

249. Black Oxide
Bulletin H-16 tells how to produce a rust-resistant black finish that is also an excellent base for topcoats of lacquer or enamel. Park Chemical Co., 8074 Military Ave., Detroit 4, Mich.

250. Acid-Resistant Mortar
Synar Silica Mortar is an inorganic acid-resistant mortar used to bond masonry shapes in chemical-resistant construction. In its cured state, this mortar contains over 95 per cent silica. It is particularly suitable for sulfuric acid service and is chemically inert to most inorganic strong acids. Pennsalt Chemicals Corp., Corrosion Engineering Products Dept., Natrona, Pa.

700. Copper and Nickel Sulfate
Information on Triangle Brand copper and nickel sulfates, for use as sources of copper and nickel in plating. Phelps Dodge Refining Corp., 300 Park Ave., New York 22, N. Y.

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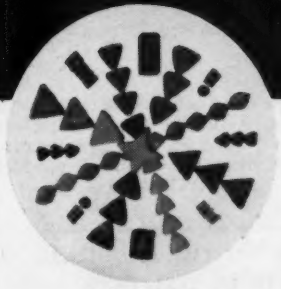

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701. Two- and Three-Stage Degreasers
Bulletin No. 655 describes two- and three-stage solvent degreasers, how they work, where they are applicable. Ramco Equipment Corp., 811 Edgewater Rd., New York 59, N. Y.

702. Electrostatic Hand Gun
A 4-page folder tells how the new Ransburg hand-held electrostatic spray gun works, what it will do. Includes photos and diagrams of the new gun. Ransburg Electro-Coating Corp., P. O. Box 23122, Indianapolis 23, Indiana.

703. Automatic Current Density Controls
Information on rectifiers with automatic controls for current density. Rectifier automatically maintains a constant current density per square foot of work. Rapid Electric Co., 2881 Middletown Rd., New York 61, N.Y.

704. Protect Polished Parts
Folder shows typical applications of Neotex neoprene rubber mesh matting, a protective cover or liner for baskets, tables, benches and so on — wherever delicate or easily marred parts are being processed. Research Products Corp., Dept. 76, Madison 10, Wisconsin.

705. Coatings for Steel
Information on the company's line of organic coatings for steel. These products are said to offer greater resistance to temperature, excellent color control, greater tensile strength. Reynolds Chemical Products Co., Whitmore Lake, Mich.

706. Silicon Rectifiers
Literature on a line of completely protected silicon rectifiers with hermetically sealed silicon diodes, individual current-limiting fuses, automatic balancing reactors, automatic overload protection, automatic single-phase protection. Richardson-Allen Corp., 116-15 Fifteenth Ave., College Point, L. I., N. Y.

708. Oven Guide
Catalog No. 122 serves as a guide for selecting the right oven to bake, dry and cure paint, varnish, lacquer and enamels. W. S. Rockwell, 2909 Eliot St., Fairfield, Conn.

709. Pearlescent Paints
Information on air-dry and baking-type pearlescent finishes. Rona Laboratories, Inc., E. 21st and E. 22nd St., Bayonne, New Jersey.

710. Barrel Finishing Equipment
A 24-page catalog on barrel finishing sets forth a clear explanation of mechanical finishing processes, tells how barrel finishing can be used in grinding, deburring, descaling, polishing and coloring of metal parts. Includes data on Roto-Finish barrel finishing machines, chip bins, separators, dryers, screens and so on. Roto-Finish Co., 3704 Milham Rd., Kalamazoo, Mich.

711. Precious Metal Plating Equipment, Supplies
Catalog No. CHP gives details on equipment, solutions and processes for depositing precious metals. Sel-Rex Corporation, Nutley 10, N. J.

712. Anodizing Racks
Information on racks made especially for use in anodizing. Service Rack Div., Servi-Sure Mfg. Co., 131 N. Green St., Chicago 7, Ill.

713. Filter Pump Units
Bulletin 103 contains complete data on Sethco filter pumps for removing solids from acid and alkaline solutions. Sethco Mfg. Co., 2292 Babylon Turnpike, Merrick, L. I., N. Y.

714. Soak Cleaner
Information on a controlled-pH, high-detergency soak cleaner for applications where space is limited for precleaning. Solventol Chemical Products, Inc., 15841 Second Blvd., Detroit 3, Mich.

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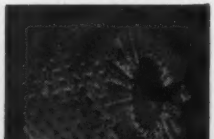

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715. Solvents
Information on acetates, alcohols, aliphatic hydrocarbons, alkanolamines, aromatic solvents, chlorinated hydrocarbons, glycols and polyglycols, glycol ether, other solvents. The Solvents and Chemicals Group, 2540 West Flournoy St., Chicago 12, Ill.

716. Epoxy Coating
Information on a pure-bake epoxy coating that cures at 325 deg. F. in five minutes. Specialty Coatings Co., 3501 W. Jarvis, Skokie, Ill.

717. Technical Data on Hot Spray
Revised edition of the booklet "Why Hot Spray?" includes technical information on the advantages and possibilities of hot spray painting process. Spee-Flo Co., 6614 Harrisburg, Houston 11, Texas.

718. Complete Finishing Systems
Literature on Spra-Con complete finishing systems for applying organic coatings. Data on components such as washers, ovens, flow-coat machines, conveyors, air make-up systems. The Spra-Con Co., 3600 Elston Ave., Chicago 18, Illinois.

719. Hydraulic Spray Coating
Bulletin 96 describes the No. 22AUHSSTC Autojet spray gun, which is built for automatic hydraulic spray coating and painting — in which paint or coatings are atomized by pressures of 400 to 2,000 p.s.i. Spraying Systems Co., 3229 Randolph St., Bellwood, Ill.

721. Coloring Compound
Information on Stevens 27L liquid tripoli coloring compound, which helps to produce high color, is easily cleaned off before finishing. Frederic B. Stevens, Inc., 1800 Eighteenth St., Detroit 16, Mich.

722. Zinc Plating Additive
Data on Zinc Brite, a cleansing and purifying agent for cyanide zinc plating solutions. Sulphur Products Co., Inc., 621 W. Pittsburgh St., Greensburg, Pa.

723. Air Sanders
Data on portable air-operated sanding machines. Pneumatic Products Div. of Sundstrand Machine Tool Co., 2531 Eleventh St., Rockford, Ill.

PROBLEM:

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SOLUTION:

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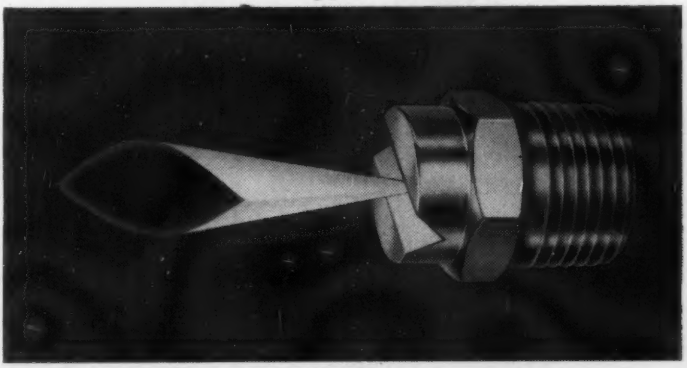

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724. Vacuum Metallizing Coils
New catalog lists 164 sizes and shapes of vacuum metallizing coils, tells about typical applications for each of them. Sylvania Electric Products, Inc., Chemical & Metallurgical Div., Towanda, Pa.

725. Selenium Rectifiers
Data sheets describe Syntron vacuum-process selenium rectifiers, include information on advantages, construction features, typical applications, specifications, efficiency. Syntron Co., 452 Lexington Ave., Homer City, Pa.

726. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax, Newark 5, N. J.

727. Cob Grit for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc., P. O. Box 185, Tipton, Indiana.

728. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Co., Box 31, Oakville, Conn.

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729. Low-Temperature Phosphate Coating
Full details on Turco's low-temperature phosphate coating, which produces up to 200 mg./sq.ft. of zinc phosphate coatings in two minutes at 95 deg. F. New phosphatizing reference chart included. Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

730. Barrel Plating Equipment
A 12-page bulletin on the Udylite line of barrel plating equipment describes plastic cylinders, cluster barrels, multiple-barrel units, complete barrel plating systems, storage and transfer units, dryers, final rinse units, other related equipment. Udylite Corp., Detroit 11, Mich.

731. Non-Destructive Coating Thickness Tester
Bulletin DF describes the Dermitron, an instrument for non-destructive coating thickness determination of metals on metals, metals on non-conductors, non-conductors on metals. Unit Process Assemblies, Inc., 61 E. Fourth St., New York 3, N. Y.

732. Vacuum Metallizing Undercoats, Topcoats
Information on Uni-Vac undercoats and topcoats for use as a base for or protection of vacuum metallized films. United Lacquer Mfg. Corp., Linden, N. J.

733. Copper Anodes
Information on "Phosphor-Brite" rolled copper anodes for acid copper plating baths. Univertical Foundry and Machine Co., 14841 Meyers Rd., Detroit 27, Mich.

734. Acrylic Coatings
Performance and application information on acrylic-based coatings. The Varnish Products Co., 5204 Harvard Ave., Cleveland, Ohio.

735. Buffs, Custom-Designed
Literature describes custom-designing service for making buffs to do specific jobs. Williamsville Buff Div., Bullard Clark Co., 22 School St., Danielson, Connecticut.

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736. Emulsion Cleaner
Nordall emulsion cleaner is useful in spray cleaning steel, cast iron and other metals. Cleaned steel is protected for up to six weeks in plant atmospheres. Details available. Wyandotte Chemicals Corporation, J. B. Ford Div., Wyandotte, Mich.

737. Environmental Test Chambers
New 12-page catalog covers a complete line of environmental test chambers. American Research Corporation, Farmington, Conn.

738. Advantages of Fused Quartz Ovens
The case for fused quartz ovens is stated in a recent "Clepco News Bulletin" prepared by Cleveland Process Corp. Both theoretical and practical considerations are covered, and absorption curves and charts are included to illustrate the points made. The bulletin discusses reasons for the high efficiencies obtained in the fused quartz ovens manufactured by the company. Cleveland Process Corp., 1965 E. 57th St., Cleveland 3, Ohio.

739. Baking and Drying Ovens
Bulletin 157 describes line of batch and conveyor-type baking ovens for heating up to 1,000 deg. F. Young Brothers Co., 1830 Columbus Rd., Cleveland 13, Ohio.

740. Vapor Degreasing
A comprehensive 32-page degreasing manual. Circo Equipment Co., 51 Terminal Ave., Clark (Rahway) N. J.

741. Hard-Coat Aluminum Anodizing Process
An improved process for hard-coat aluminum anodizing is described in a bulletin. Called the Porac process, it makes possible a more uniform aluminum oxide coating and substantially greater thickness of deposit, when desired. Accurate Anodizing Corp., 4506 Roosevelt Rd., Chicago 24, Ill.

720. Spraying Wash Primer
Information on Stantite Spraying Wash Primer, a two-package rust-inhibiting primer that is said to improve the quality of any topcoat, air-dry or bake. Stanley Chemical Co., Dept. PF, 1338 Berlin St., East Berlin, Conn.

OPPORTUNITY SECTION

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News of the Finishing Industry

- company news
- new positions
- new plants
- meetings

NEW PLANTS

Ashdee Opens Electrostatic Painting Lab

Ashdee Electrostatic Division has set up a new electrostatic painting laboratory in Joliet, Illinois. Other Ashdee labs are in Dallas, Texas and Milan, Italy.

Dresser Electric Moves to New Plant

Dresser Electric Co., Detroit manufacturer of plating rectifiers, rectifier conversion kits, transformers and D.C. power supplies, has moved to a new and larger plant at 2705 Wight St., Detroit.

Visitors to A.E.S.'s Golden Jubilee Convention are cordially invited to visit Dresser's new plant and inspect facilities.

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COMPANIES

Schaffner Appoints Southern Distributor

Eugene O. Eagle

Schaffner Manufacturing Company, Inc., Pittsburgh manufacturer of buffs, buffing compositions and related products for the finishing industry, has issued a franchise to Eugene O. Eagle. By the terms of this agreement, Mr. Eagle will exercise his franchise to sell Schaffner products in Virginia, North Carolina and South Carolina.

Mahon Appoints Sales Agent

Associated Metal Products Co., Baltimore, Md., has been appointed sales agent for the Building Products Division of The R. C. Mahon Co., Detroit.

The Baltimore company, which makes its headquarters at 338 E. 25th St., will represent the Detroit firm throughout northeastern West Virginia and in Maryland, except for Montgomery, Prince Georges, Charles, St. Mary's and Calbert counties.

Rack Manufacturer Adds New Products, Takes New Name

Service Screw Products Company, Chicago manufacturer of anodizing racks, recently added electropolishing racks to its line. At the same time the company has taken a new name and

will now be known as Servi-Sure Manufacturing Company. The change was prompted by the firm's increasing concentration on equipment for the metal finishing industry. Ernest Rosner continues as president of the firm, with James K. Trinz as vice-president in charge of the Service-Rack Division.

Metal and Thermit Introduces Duplex Chromium Plating Process

A significant step forward in the battle against corrosion of plated parts was announced by Metal & Thermit Corporation at a press conference in Detroit on May 26.

"Duplex Chromium," a two-step chrome deposit, applies a "much thicker layer of chromium (five to 10 times heavier), and increases corrosion resistance up to 500 per cent," according to Hugh D. McLeese, Metal and Thermit vice president.

"Accelerated tests show that this process can add years to the life of chrome plated trim on automobiles, even in areas where the atmosphere is regarded as highly corrosive," Mr. McLeese said.

Several auto makers have already started to use the new process to plate bumpers, grilles and trim.

Metal & Thermit recommends an initial application of bright crack-free CF-520 chromium for optimum coverage and buildup in low current density areas, followed by a second bright deposit of finely cracked chromium from a CR-110 bath. No buffing is required on either deposit, and Cr-Cr adhesion is good.

Applicable to die castings as well as steel, the Duplex Chrome has produced outstanding corrosion resistance for one producer, resulting in 80 per cent approval for parts undergoing a tough 32-hour CASS test (twice the normal 16 hours) according to Metal & Thermit.

Sifco Metachemical Buys Rights to Dalic Process

Sifco Metachemical, Inc., a subsidiary of Steel Improvement & Forge Co., Cleveland, Ohio, has acquired the parent firm's electrochemical business. At the same time, Sifco purchased licensing rights in Canada and the U. S. for the Dalic process of "brush" plating, previously owned by Dalic Metachemical, Ltd., Toronto, Ontario.

Sifco is also associated with Metachemical Processes, Ltd., London, England, and Laboratories Dalic, Paris, France, and has reciprocal licensing agreements with these firms.

Metachemical Processes recently developed a micrograin nickel process for the production of nickel electroforms. The process is being widely used in the British aircraft industry. U. S. firms are studying its possible uses.

Sifco Metachemical, Inc., is at 935 E. 63rd St., Cleveland. President of the company is A. H. Milnes; chairman is C. H. Smith, Jr.

Northwest Chemical Company Appoints Canadian Licensee

The Armalite Company, Limited, Crystal Arts Square, Toronto, Ontario, has been licensed by Northwest Chemical Company of Detroit to manufacture and sell its products in Canada.

Armalite has organized a new division known as the Alkali Division. This division will be managed by D. E. Wellman, who has represented Northwest Chemcal Company for many years.

Allied Research District Heads Attend Management Meeting

Allied Research Products, Inc. was represented by three of its district managers, L. F. Richard, L. J. Camill, and A. L. Poe, at the Sales Management Training Program recently held at Michigan State University.

NECROLOGY

A. N. Braun

A. N. Braun, president of Braun Organic Finishes, Inc., Long Island City, New York, died on May 2 as a result of a heart attack.

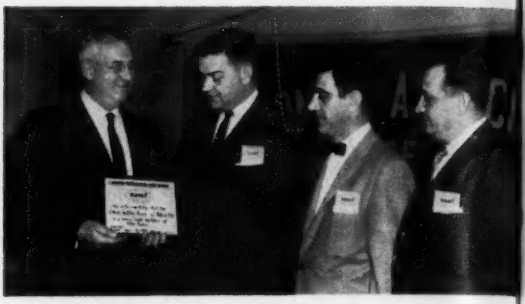
Mr. Braun had been active in the finishing industry for many years and served as president of the Metal Finishing Suppliers' Association, Inc., in 1953.

SOCIETIES

New England Platers Meet in Hartford

A most successful 20th Annual A. E. S. New England Regional Meeting was held in Hartford on April 18. The meeting was sponsored by the Bridgeport, Hartford, New Haven, Springfield, and Waterbury Branches, with the Waterbury Branch as host.

More than 125 members and guests heard Dr. E. B. Saubestre, assistant to research director, Enthone, Inc., discuss "Electropolishing." Dr. Saubestre (Fig. 1) outlined the historical background of electropolishing, which, appropriately, was actually discovered



At a special meeting held April 18 in Hartford, Connecticut, the National Association of Metal Finishers granted a charter to the newly formed Connecticut Valley Association of Metal Finishers, the 14th affiliated chapter of the N. A. M. F. Shown at the charter presentation ceremony are (left to right): Frank J. Kaiser, Long Island Mechanical Plating Co., Inc., secretary-treasurer, N. A. M. F., who presented the charter on behalf of the N. A. M. F.; Charles T. Smith, plating division manager, Danbury Metal Finishing, chairman of the Connecticut Valley Association of Metal Finishers; Sal Novelli, Service Plating Co., asst. secretary-treasurer, N. A. M. F.; and Charles R. Leva, Levco Metal Finishers, Inc., N. A. M. F. director.

After the presentation ceremony, P. Peter Kovatis, executive secretary of the N. A. M. F., discussed the subject "Needed: A New Attitude Toward Small Business." (Photograph by PRODUCTS FINISHING.)

★ ★ ★

Fig. 1—Speakers and Regional Meeting officials. Shown (left to right) are: Dr. E. B. Saubestre, Enthone, Inc., speaker; Dr. Abner Brenner, National Bureau of Standards, speaker; Edward J. Garland, Chromium Corp. of America, meeting chairman; Frank Tirendi, Patent Button Co., regional secretary; Michael Tamas, Branson Ultrasonic Corp.

in New England. He discussed the three general types of present-day processes, presenting much useful, practical information on the subject.

Dr. Abner Brenner gave a humorous, highly interesting and informative report on his trip to Moscow in 1958 to attend a conference on "Corrosion." His remarks were illustrated by stereocolor slides showing scenes in the city of Moscow, including photos of some of the Russian scientists who led the conference.

Following the Educational Session at the New England Regional, (a style show for the ladies was held concurrent with the technical session), a "Joint-Hospitality" Suppliers' Reception was given. Hosts were:

Allied Research Products, Inc., Conversion Chemical Corp., E. I. du Pont de Nemours & Co., Inc., Enthone, Inc., Frederic B. Stevens, Inc., Hanson-Van Winkle-Munning Co., Heatbath Corp., MacDermid, Inc., MacDermid Sales & Equip. Co., Inc., Metal & Thermit Corp., Sel-Rex Corp., Chemical Corp., Harshaw Chemical Co., Hubbard-Hall Chemical Co., Lea Mfg. Co., Udylite Corp., True Brite Chemical Products Co., Wyandotte Chemicals Corp.

A banquet attended by some 700 members and guests (Fig. 2) concluded the meeting.

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MEETINGS of INTEREST to FINISHERS

June 21-26. 62nd Annual Meeting, American Society for Testing Materials, Chalfonte-Haddon Hotel, Atlantic City, N. J.

August 22. Stag Day, Detroit Branch, A. E. S., Detroit, Mich.

Fig. 2—Members and guests attending the banquet at the A. E. S. New England Regional Meeting filled The Statler Ballroom. (Photographs by PRODUCTS FINISHING)

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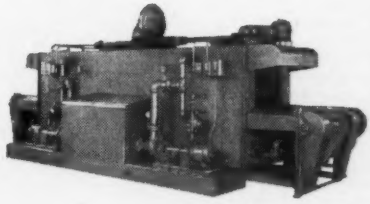

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JUNE ADVERTISERS' INDEX

Abrado Finish Corp. 192
Abrasive Products, Inc. 111
Acme Mfg. Co. 15
Acoustica Associates, Inc. 121
Agate Lacquer Mfg. Co., Inc. 205
Alchemize Corp. 191
Allied Finishing Specialties Co. 109
Allied Research Products, Inc. 137, 177
Almco, Queen Products, Inc. 155
Amchem Products, Inc. 127
Amercoat Corp. 167
American Brass Co. 28, 29
American Metal Climax, Inc. 61
Apex Alkali Products Co. 66
Ashdee Electrostatic Div., Industrial Electronics Co., Inc. 180
Atlantic Compound Co. 168
Automotive Rubber Co., Inc. 175
Bacon Felt Co. 6
Baird Machine Co. 173
Barrett Co., Leon J. 90
Behr-Manning Co., Div. of Norton Co. 93
Beike Mfg. Co. 8
Benchmark, Inc. 172
Better Finishes & Coatings, Inc. 55
Bias Buff Div., Riegel Textile Corp. 189
Bison Corp. 196
Blakeslee & Co., G. S. 207
Bond Chemical Products Co. 75
Brady Co., W. H. 186
Bush Mfg. Co. 88
By-Buk Co. 194
Chainveyor Corp. 153
Churchill Co., Inc., George R. 121
Cincinnati Cleaning & Finishing Machinery Co. ....Second Cover
Cohn Mfg. Co., Inc., Sigmund 193
Commercial Filters Corp. 185
Conforming Matrix Corp. 182
Consolidated Electrodynamics Corp. 149
Conversion Chemical Corp. 187
Cowles Chemical Co. 34
Crescent Bronze Powder Co. 172
D & W Tool & Findings, Inc. 186
Day & Co., James B. 178
Delavan Mfg. Co. 199
Detrex Chemical Industries, Inc. 16, 17
Detroit Industrial Process Co. 190
DeVilbiss Co. 10, 11
Diamond Alkali Co. 2
Dixon Sintaloy Inc. 104
Dresser Electric Co. 87
Drying Systems Co. 122
DuBois Co., Inc. 9
Duralac Chemical Corp. 13
Electro-Glo Co. 77
Electrochemical Products, Inc. 195
Elkhart Controls Co. 194
Enthone, Inc. 4
Esbec Barrel Finishing Corp. 96
Federated Metals Div., American Smelting & Refining Co. 57
Formax Mfg. Corp. 128
Fortune Industries, Inc. 197
G. S. Plastics Co. 19
Gardner Laboratory, Inc. 196
Garfield Buff Co. 182
Glo-Quartz Electric Heater Co., Inc. 12
Globe Chemical Co., Inc. 152
Guaranteed Buff Co., Inc. 198
Gyromat Corp. 179
Hammond Machinery Builders, Inc. 7
Hanson-Van Winkle-Munning Co. 47
Harshaw Chemical Co. 20, 21
Industrial Filter & Pump Mfg. Co. 58, 59
Industrial Instruments, Inc. 157
Industrial Ovens, Inc. 22
J. J. R. Co. 194
Jelco Finishing Equipment Corp. 108
Kelite Corp. 92
Kirk & Blum Mfg. Co. 18
Koch Sons, Inc., George 26
Kocour Co. 74
Kramer Co., H. W. 126
Kushner Electroplating School 202
Lanly Co. 119
Lesco Products Co. 200
Lowe Bros. Co. 144, 145
MacDermid, Inc. ....Third Cover
Magnus Chemical Co., Inc. 63
Magnuson Products Corp. 86
Mahon Co., R. C. 48, 49
Mard Products, Inc. 150
Mearl Corp. 97
Michigan Oven Co. 100
Microbeads, Inc. 151
Mitchell-Bradford Chemical Co. 165
Monsanto Chemical Co. 80, 81
Morse Mfg. Co., Inc. 196
NRC Equipment Corp. 183
National-Detroit, Inc. 170
National Polymer Products, Inc. 129
Neilson Chemical Co. 112, 113
New Holland Machine Co. 64
Nikolas & Co., Inc., G. J. 23
Nordson Corp. 30
Nuodex Products Co. 117
Oakite Products, Inc. 1
Packer Machine Co. 161
Park Chemical Co. 190
Pennsalt Chemicals Corp. 31
Phelps Dodge Refining Corp. 14
Ramco Equipment Corp., Div. of Randall Mfg. Co., Inc. 176
Ransburg Electro-Coating Corp. 3
Rapid Electric Co. 159
Research Products Corp. 107, 184
Reynolds Chemical Products Co. 181
Richardson-Allen Corp. 171
Rockwell Co., W. S. 91
Riegel Textile Corp., Bias Buff Div. 189
Rona Laboratories, Inc. 84
Roto-Finish Co. 50
Sel-Rex Corp. 101
Servi-Sure Mfg. Co., Service Rack Div. 198
Sethco Mfg. Corp. 154
Solventol Chemical Products, Inc. 160
Solvents & Chemicals Group 115
Specialty Coatings Co. 105
Spee-Flo Co. 169
Spra-Con Co. 89
Spraying Systems Co. 158
Stanley Chemical Co. 124, 125
Stevens, Inc., Frederic B. 24, 25
Sulphur Products Co., Inc. 122
Sundstrand Corp. 67
Sylvania Electric Products, Inc. 65
Syntron Co. 68
Tenax Finishing Products Co. 200
Thornton Products Co. 106
Ti-Co Industries, Inc. 200
True Brite Chemical Products Co. 188
Turco Products, Inc. ....Fourth Cover
Udylite Corp. 32, 33
Unit Process Assemblies, Inc. 188
United Lacquer Mfg. Corp. 53
Univertical Foundry & Machine Co. 192
Varnish Products Co. 164
Williamsville Buff Div., Bullard Clark Co. 76
Wyandotte Chemicals Corp. 27
Young Brothers Co. 85

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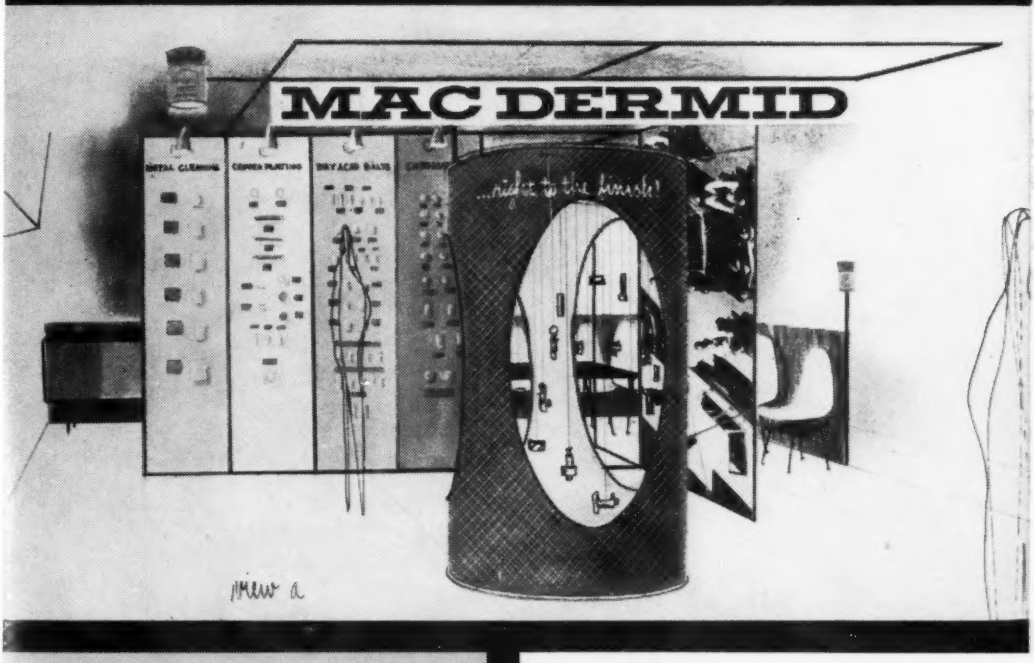

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